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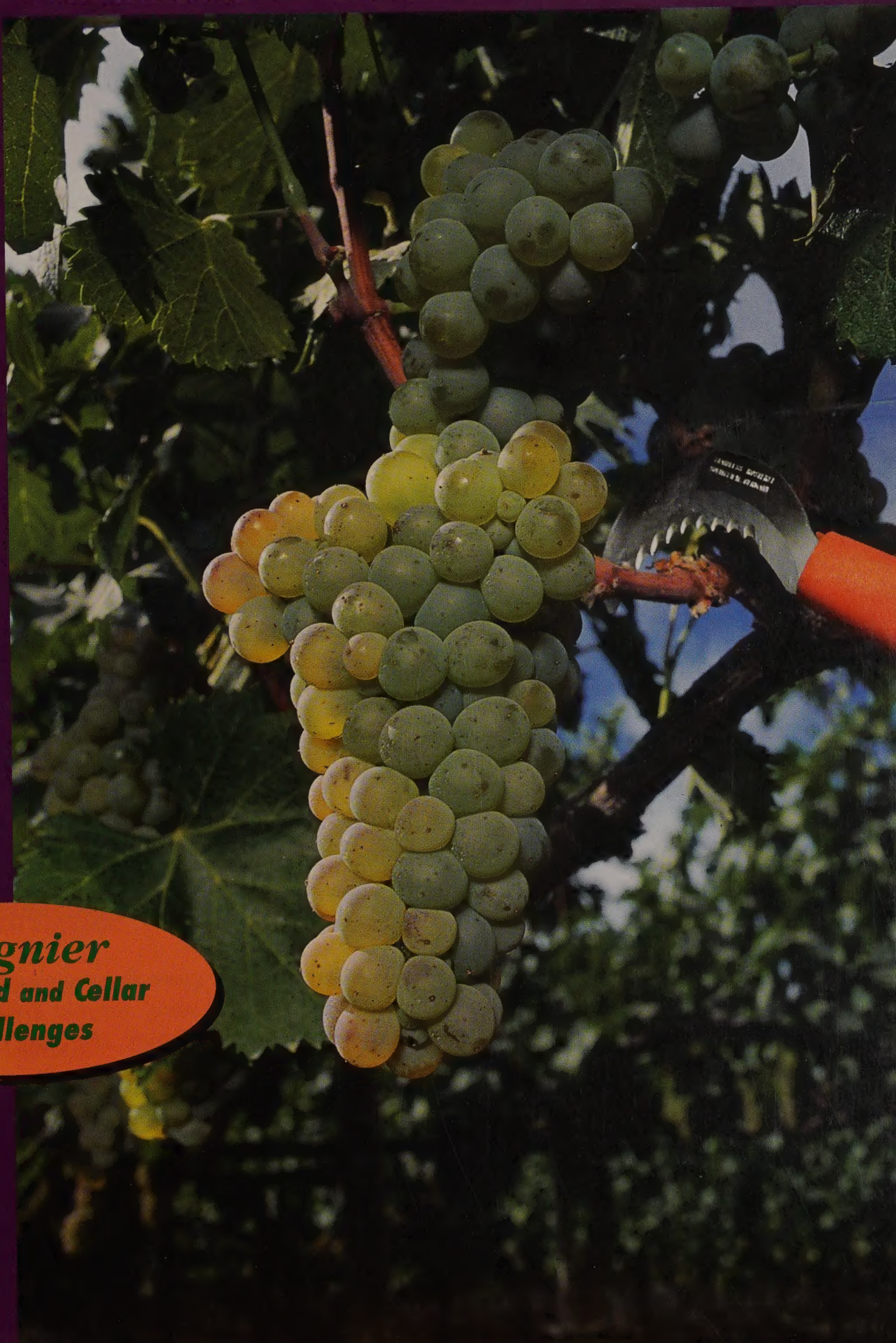

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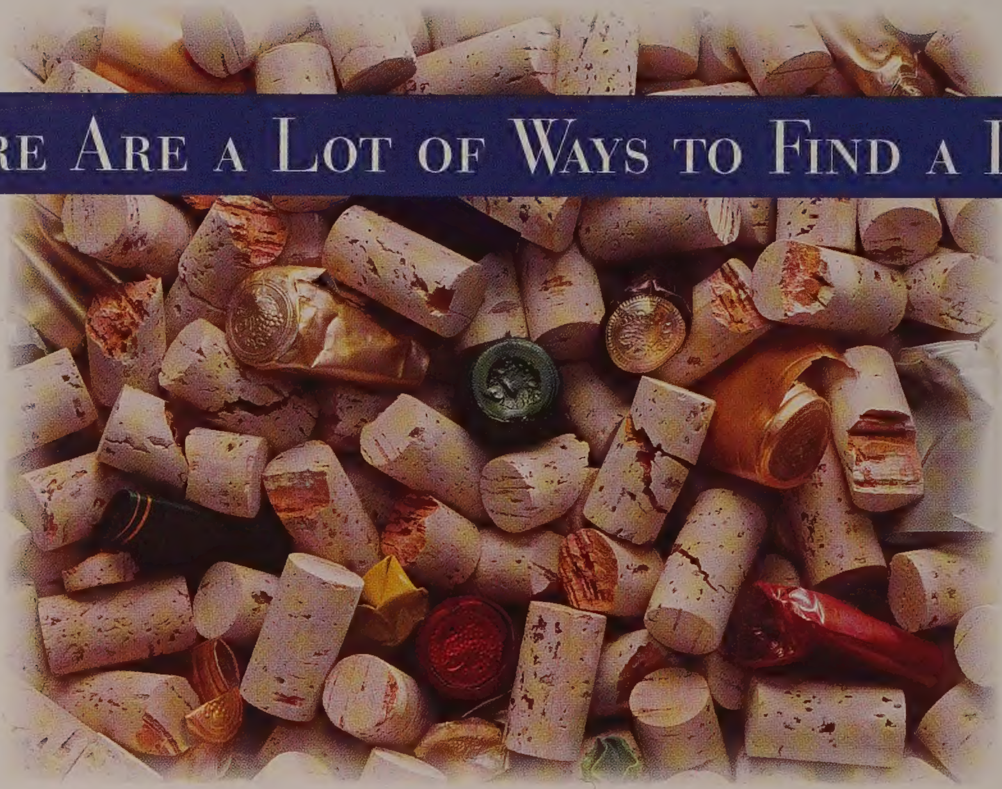

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Cover: Viognier on U-trellis at Saralee's Vineyard, Windsor, CA. Photo by Scott Clemens

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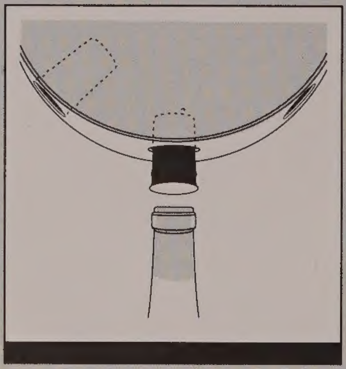

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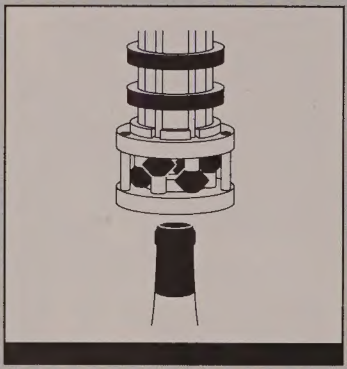

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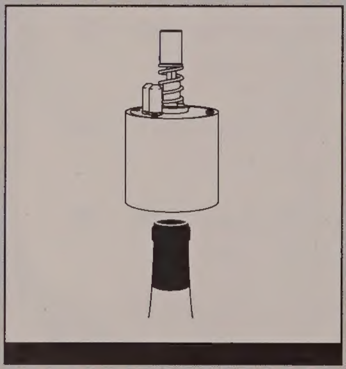

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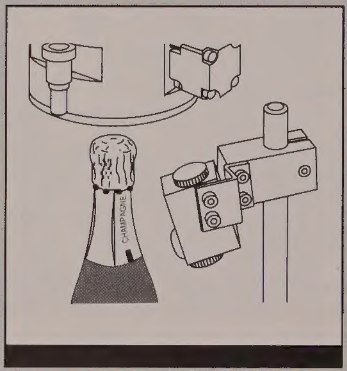

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GENETIC INVESTIGATION

Yeasts isolated from spontaneous fermentations of grape musts in California and Italy

by Robert K. Mortimer
Dept. of Molecular & Cell Biology
Division of Genetics
University of California, Berkeley

Spontaneous fermentation of a grape must to yield a wine is a fascinating microbiological sequence of events. It appears that all organisms necessary for this process are present on the grapes; the crushing of grapes releases and inoculates the must to start the whole sequence of events.

Several studies have shown that the primary fermentation is initiated by yeast of the genus *Kloeckera* with participation from other yeasts such as *Metschnikowia, Candida,* and *Pichia.* When the ethanol concentration reaches about 5%, these yeast typically (not always) die off and are replaced by yeast of the genus *Saccharomyces* which completes the fermentation. At the start of fermentation, the ethanol-tolerant *Saccharomyces* yeasts are rare, but towards the middle and end of fermentation, they are the numerically dominant yeast.[2]

I have had an interest in the role of yeast in winemaking for many years and was presented an opportunity to get involved in 1991 during a visit to Florence, Italy to see Mario and Barbara Polsinelli. During my visit, Mario (Professor of Genetics at the University of Florence), invited me to participate in a new project on the genetics of wine yeast, and I gladly accepted. Mario's collaborators were Patrizia Romano and Giovanna Suzzi of the University of Bologna, who had both worked with wine yeast for many years. Mario's main area of expertise is bacterial genetics, but he also had considerable experience in the area of winemaking and viticulture.

I began my studies in Florence in 1992 and soon found that the techniques and knowledge used in the study of laboratory strains of *Saccharomyces* (I have worked in this area for 40 years) applied equally well to these indigenous (native, wild, natural) yeasts. However, in contrast to the heterothallic laboratory strains, most of the natural (wild) strains were homothallic. Heterothallism and homothallism refer to the behavior of spores in such strains, as described below.

Wine yeast strains are diploid and sporulation of such diploids yields asci (containing four haploid spores) which result from the two meiotic divisions. In heterothallic strains, these spores continue to divide as haploid cells and each set of four spores (meiotic tetrad) contains two spores of one mating type and two spores of the opposite mating type. Any other heterozygous site (A/a, the two copies of the gene are different) also will segregate 2A : 2a in these tetrads.

Spores from homothallic strains, in contrast, divide twice and two of the resultant four cells switch mating type. This is followed by mating to form twin zygotes which develop into completely homozygous diploids, which are unable to mate.

Haploid cells contain one set of the 16 chromosomes in the *Saccharomyces* genome, whereas diploid cells contain two sets of these chromosomes. Homothallism assures that a strain will remain diploid, whereas heterothallic strains may be either haploid or diploid. Diploid strains, in general, divide more rapidly than haploid strains and this provides a possible advantage to the homothallic wine strains.

Of the nearly 100 strains that had been isolated by our Bologna colleagues, 28 were selected for detailed analyses. These studies were started in Florence and continued upon my return to Berkeley. We found that all 28 strains, which came from 28 different cellars in the region of Emilia Romagna, were all genetically different.

We also discovered a new phenomenon, Genome Renewal, that applies to these homothallic diploid cell lines. Genome Renewal is an important finding. It is probably the significant mechanism for evolution of strains that can sporulate in their natural environment and yield haploid spores. However, because of the HO (homothallism) gene, these spores will convert to completely homozygous diploids after two divisions. Some of these diploids may be more fit than the original diploid and replace it.[6]

In the spring of 1993, I returned to Florence and started a new project. We selected two natural (wild) strains that produced (in wine) largely different amounts (~300 mg/l vs ~15 mg/l) of the compound acetoin (3-hydroxy-2-butanone). This is one of the many products of fermentation and is thought to play a role in the flavor and aroma of the wine. Acetoin is a precursor of 2,3-butanediol, which imparts an undesirable flavor to the wine, and is found in most wines.

Spores from the low and high acetoin-producing strains were crossed by a method similar to that developed by Winge nearly 60 years ago.[9] Wine produced by fermentation of a grape must with each of the hybrids and their meiotic segregants were analyzed by gas chromatographic procedures for acetoin production (about 160 strains were analyzed).

We found that both parents were completely homozygous and that the difference in acetoin production of the two strains was controlled by a single gene and that production of large amounts was recessive.[7] Recent results indicate that this gene controls the conversion of acetoin to 2,3-butanediol. This step is defective in the strains which produce large amounts of acetoin; such strains correspondingly produce small amounts of 2,3-butanediol. In addition to this finding, these experiments demonstrated that

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breeding of native yeast based on existing natural diversity is feasible.

In the fall of 1993, I contacted several California wineries that were carrying out spontaneous fermentations and arranged to collect samples of fermenting musts. A total of 27 must samples from eight wineries (Chalk Hill, Frogs Leap, Robert Mondavi, Newton, Ravenswood, Ridge, Sterling and Viano) were collected.

The samples were diluted and plated to yield single colonies. These colonies were then tested by replica plating for a number of phenotypic traits. It was soon discovered from these phenotypic analyses that the *Saccharomyces* yeast present in individual fermentations were not homogeneous, but instead showed considerable diversity.

For example, 112 colonies were analyzed from one of the musts; 100 of these colonies were fermenters of sucrose, maltose and galactose; were copper-sensitive; and produced H_2S at level-3. (Levels 0, 1, 2, 3 and 4 refer to the depth of color of the yeast on Biggy Agar. 0 is white and 4 is dark brown.) The other 12 colonies differed from these 100 colonies in one or two traits; five produced H_2S at level-1, five others were galactose-nonfermenters, and one colony was galactose-negative and copper-resistant. Similar patterns of diversity were seen in the colonies isolated from all of the musts.

On the basis of the above findings, it was decided to analyze genetically at least five strains from each fermentation. Due to poor sporulation of some of the strains, this was not always possible. Five strains were analyzed from only 17 of the 27 must samples, four strains were studied in seven samples, and three in three samples. The genetic studies confirmed and extended the phenotypic analyses. In 15 of the 27 samples, all of the strains were genetically different. In the other 12 samples, some of the strains were detected two or three times.

A total of 121 strains that had been selected from the 27 must samples were examined and from each, around nine meiotic tetrads (asci) were dissected. The resultant spore clones were tested for their abilities to ferment sucrose, maltose, and galactose; growth on minimal medium; growth on glycerol (a nonfermentable carbon source); resistance to copper ion (60 μg/ml);[4] and production of H_2S (using Biggy Agar from DIFCO).

In addition, the original strains were tested for sporulation abilities (on 0.3% potassium acetate agar) and spore viability patterns and for the segregation of other traits, such as spore colony growth rates and spore colony morphology. Four of the strains were found to be heterozygous for a nutritional requirement (arginine, tryptophan, methionine, and homoserine), while 11 were heterozygous for a mutation that conferred respiratory insufficiency, *i.e.* they were genetically petite and could not grow with glycerol as the sole carbon source. Strains that are heterozygous for a particular trait will yield two types of spores. For example, spores that require arginine and spores that do not require this amino acid for growth.

Several strains were segregated for genes that affected colony morpholgy, growth rate of the spore clones, or viability of spore clones. Some diploids yielded tetrads with two viable spores and two spores that failed to develop into colonies. We consider such diploids to be heterozygous for a recessive lethal mutation.

Other strains appeared to be heterozygous for two or more lethals. A recessive lethal mutation is a mutation in a gene that performs an essential function. Such genes do not confer lethality if they are in heterozygous condition (one normal copy of the gene is present.) Most of the strains were homozygous for the homothallism gene (HO/HO) but 16 were heterozygous for this gene (HO/ho) and 16 were heterothallic (ho/ho). Of the 121 strains examined, 77 showed heterozygosities for one or more traits.

The presence of heterozygosity in wine yeast strains suggests that these strains have been exposed to mutation-causing agents such as sunlight or chemicals. In general, heterozygosity (at least for some traits) is deleterious but the homothallic diploid wine yeasts have a mechanism for eliminating such heterozygosities, *i.e.* genome renewal.[6]

One interesting and still unexplained finding is that two strains, which were completely homozygous and which sporulated at very high frequencies, had 100% spore viability, fermented all three sugars and grew on minimal medium and on a nonfermentable carbon source, were present at about a 20% frequency in nearly all of the samples. These two strains differed only in resistance to copper ion (see above); cells from 17 strains were copper-sensitive, and cells from nine strains were copper-resistant.

At one winery, most of the strains examined from each of four fermentations were unique. Yet, one of these two strains (copper-sensitive) was found once in each of three of the fermentations and twice in samples from the fourth. There was no particular geographic localization of these two strains.

We propose that these two yeast strains may be progenitor strains from which the other strains have been derived. In support of this proposal is the observation that eleven other strains were found that were very similar to one or the other of these two strains but were also homozygous for one additional mutation. The wide distribution of these strains can be explained by their transport from one vineyard to another by vectors such as birds or insects.

Two of the California wineries were conducting controlled experiments involving spontaneous and inoculated fermentations. In each case, two identical tanks (or barrels) contained the same must. One was allowed to ferment spontaneously, the other was inoculated with a commercial yeast.

In both cases, these musts were sampled at the end of fermentation. At Chalk Hill Winery (using Prise de Mousse [PDM]), four out of five of the *Saccharomyces* strains from the inoculated fermentation had the genetic properties of PDM. At Ridge Winery, at most, only one out of five strains examined could correspond to the commercial yeast (Bordeaux Red), assuming that the inoculum was homogeneous. All five strains examined from this fermentation were genetically different.

One fermentation at Ridge was sampled one day after crushing and another at Robert Mondavi at 14.5° Brix. The remainder of the samples were taken at or near the end of fermentation. The one-day sample from Ridge yielded 208 colonies of which 164 were classified as *Kloeckera apiculata*, 43 were *Saccharomyces cerevisiae* and one was *Metschnikowia pulcherrima*. The second early fermentation yielded 55 colonies of which five were *Kloeckera apiculata* and 50 were *Sacchaormyces cerevisiae*. All the other samples from later stages of fermentation yielded only *Saccharomyces* strains. These results are also consistent with those reported in Australia, France, Switzerland, and Italy.[2,3,8] (See also figure 1.)

The vineyards from which the grapes were collected for these studies were distributed widely over Northern California, from the Coast Range in the southern San Francisco Bay region, to Martinez, the Carneros region, Napa and Sonoma Valleys, and north to the Chalk Hill region, and Geyserville.

Two recent studies, that use entirely different methods of strain characterization (pulsed-field gel electrophoresis), report results that strongly support our findings and add additional information. Frezier and Dubourdieu (1992) in Bordeaux, France, and Schütz and Gafner (1993) in Wädenswil, Switzerland found multiple strains of *Saccharomyces* in individual fermentations and the presence of dominant strains in different fermentations.

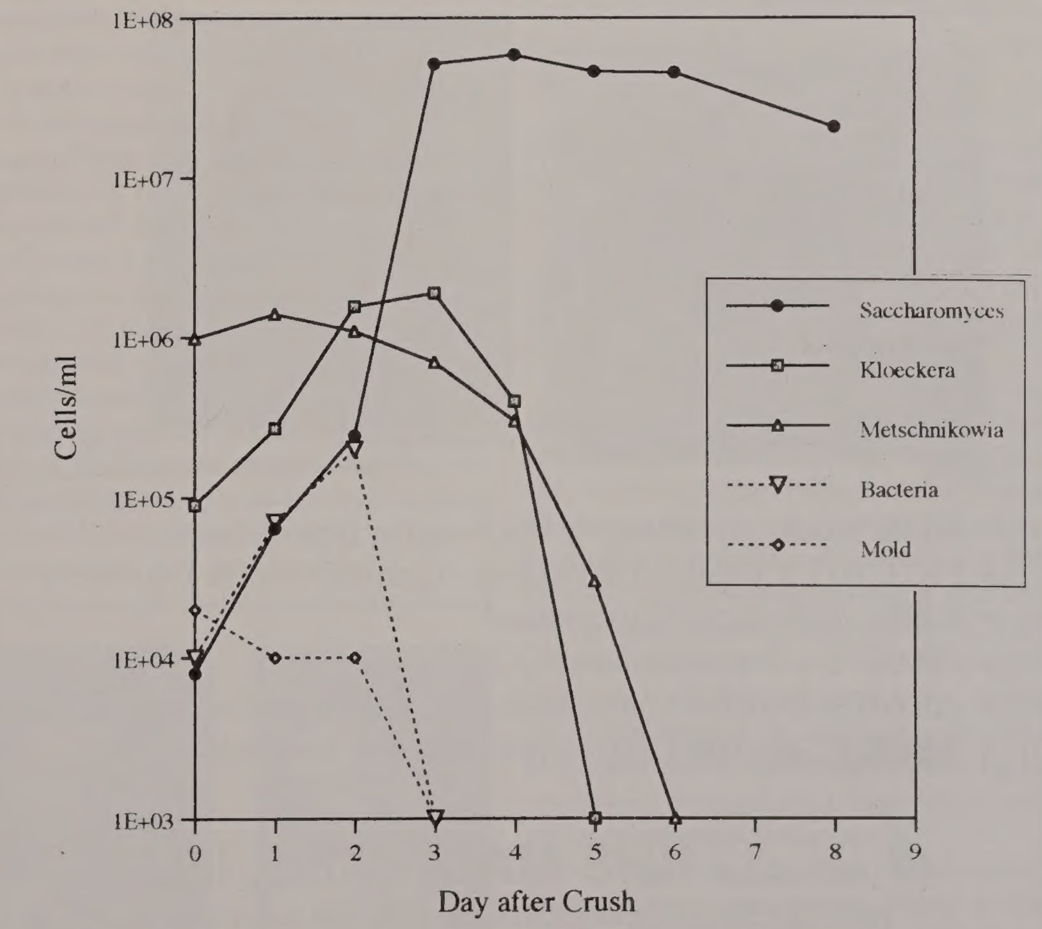
In both cases, fermentations started with *Hanseniaspora* (Kloeckera) and *Metschnikowia* were replaced by *Saccharomyces* at the middle of the fermentation. Schütz and Gafner also have shown that the "composition of the yeast strain population changed from one fermentation to another." Very interestingly, both groups also found that during fermentations, the relative proportions of the different strains of *S. cerevisiae* changed.

Very recently, we have found strains of *S. cerevisiae* in washings from grapes isolated directly from several vineyards. Although cells of this yeast are very infrequent, nevertheless they are present on the grapes along with many other microorganisms. We have isolated over 60 different strains of *Saccharomyces* in such washings and are presently characterizing them. We also have crushed grapes in the laboratory under sterile conditions and have recovered *Saccharomyces* strains from the fermenting musts (Torok, Romano, Suzzi, Polsinelli, and Mortimer [unpublished observations]).

The main conclusions from this study of California wine yeasts and other studies are:

1. Spontaneous fermentations of grape musts start with a preponderance of yeast of the genus *Kloeckera* and these yeast are then replaced by strains of *Saccharomyces*

Figure 1



Plot of cells/ml of various organisms by day(s) after crush for a Cabernet Sauvignon fermentation at Ravenswood Winery. The grapes came from the Gregory Vineyard located southeast of Sonoma.
(Author thanks the winery staff for advice and assistance in collection of samples).

which complete the fermentation.

2. Individual spontaneous fermentations are usually carried out by several (probably ten or more) different strains of *Saccharomyces.*

3. Different fermentations in the same winery are carried out by different populations of *Saccharomyces;* the yeast population is characteristic of the must, not of the cellar. We believe these results argue against a cellar origin of the *Saccharomyces* strains but are in favor of a vineyard origin. Direct isolation of *Saccharomyces* strains from the grapes (see above) support this conclusion. We accept that *Saccharomyces* can exist in the winery and that such yeast may enter a fermentation. However, it has yet to be determined what is the relative contribution of vineyard compared to cellar yeast in any given fermentation.

4. Most of the indigenous *Saccharomyces* strains are homothallic, but some are heterozygous for homothallism/heterothallism, or are heterothallic.

5. Approximately two-thirds (77/121) of the California strains were heterozygous at one or more genetic loci. These heterozygosities were for traits such as fermentation of sugars, growth on minimal medium, growth on nonfermentable carbon sources, resistance to copper ion, production of hydrogen sulfide, colony morphology, recessive lethals, growth rate, and heterothallism. The balance of the strains were completely homozygous and we believe such homozygous strains arise from the heterozygotes by a process we call "Genome Renewal" (see above).

6. It is my impression that most of the winemakers with whom I have worked believe that spontaneous fermentations produce more interesting and complex wines compared to the wines produced by inoculated fermentations. One possible explanation of this is that many different strains of *Saccharomyces cerevisiae* are involved in the former process in contrast to primarily one in the latter. ■

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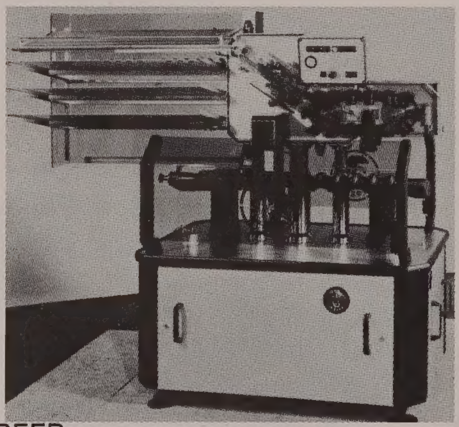

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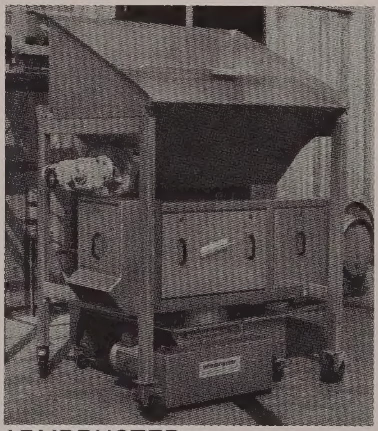

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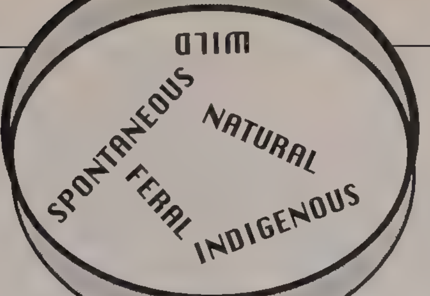

YEAST:

Should you inoculate?

by Eleanor & Ray Heald

Wild, indigenous, spontaneous, feral, and natural are words used in modern-day yeast discussions. Use whichever word you like. It all boils down to decisions of inoculating primary fermentation or not.

To explore factors pushing the envelope of such judgments, ***PWV*** invited California winemakers to a discussion. Bob Bertheau, Chalk Hill Winery, Healdsburg; Doug Fletcher, Chimney Rock Winery, Napa; John Williams, Frog's Leap Winery, Rutherford; Derek Holstein, Guenoc Estate Winery, Middletown; Terry Henry, Robert Mondavi Winery, Oakville; Paul Draper, Ridge Vineyards & Winery, Cupertino; Jack Stuart, Silverado Vineyards, Napa; and Bill Dyer, Sterling Vineyards, Calistoga offer their opinions.

Draper, who during his 25 years at Ridge Winery, has depended on uninoculated fermentations (NI) offered these introductory thoughts: "My interest in spontaneous fermentations stems from the fact that wine differentiates itself from all other alcoholic beverages by having ***all*** the components for its own production present in the raw material. In red wine, the grape provides sugar, acid, color, tannin, and yeast. If the grapes are of high quality, it is being redundant to add any of these elements. They're present in nature and the process is natural. Man has the essential but secondary role of guiding the process to produce the finest wine possible, given the fruit.

"In an era when wine is being equated with mind-altering drugs as just another alcoholic beverage, we ignore (at our peril), the uniqueness of nature's role in what we do. That uniqueness is the reason why, from the beginning, wine has been a part of Christian and Jewish ritual as the central symbol of transformation for western civilization."

Marketing

Fletcher notes that the reason a winemaker chooses NI over inoculation is to make a better wine, but questions its use by marketing. It seems that Draper has been doing it quietly for a quarter-century, but when other wineries try it, it's chic and an element to hype.

Williams, who has not inoculated since 1984, says it has become trendy — something new to talk about. He believes that the public relations element of NI needs to be separated from a ***PWV*** -discussion. The bottom line is, making a better wine.

Stuart suggests that every winemaker is searching for more variables to manipulate for higher quality, greater complexity, and interest.

It's easy to over-attribute increase in quality to a given technique," Dyer contends. "I feel uncomfortable saying, 'wonderful things happen, the wine is transformed by NI.' Rather, it is a matter of adding nuances and building the texture of the wine, in abandoning the monoculture of a single strain fermentation and utilizing instead an array of strains acting somewhat sequentially."

Dyer reveals that a winemaker friend accused him of fad winemaking and he keeps that in mind, but recalls that in about 8,000 years of winemaking, most of it was made NI. "I resist the idea that this is a fad," he says.

It is a matter of adding nuances and building the texture of the wine.
— Bill Dyer

We ignore (at our peril), the uniqueness of nature's role in what we do.
— Paul Draper

"The PR and marketing aspect of this is going to go on whether we like it or not," Draper admits. "After all these years, we still do experiments each year with Ridge Montebello and ferment some with a "French Red" inoculum as a control. We're not kidding ourselves, NI is giving us a wine of more complex character."

Down to the nitty gritty

Williams (interviewed by phone) questions the definition of NI fermentation. He suggests that an important consideration for a NI fermentation is the cold soak period of three to four days before primary fermentation kicks in. He also suggests that *Saccharomyces* may not always be the fastest yeast. Therefore they may not, in many cases, begin the fermentation.

In NI tanks, a variety of yeasts, each with their own pathway, offer multiple flavor components. In addition, Williams maintains, if tanks are pitched, only the first tank had the cold soak. He insists that if it's true NI, then each tank must be allowed to start on its own.

"Each tank must start on its own," Draper agrees. "The French talk about NI, but in many chateau, the first tank is started with a selected yeast and subsequent tanks are pitched from that. If questioned, some of the French then use the term 'naturally selected yeast,' but that doesn't fly with me."

When asked about SO_2 additions, Draper confirms that in 90% of his fermentations, between 25 and 30ppm free SO_2 is added at the crusher. Kloeckera is positive in plating done before must goes to tank and typically dominates for the first 48 hours. He believes that if acid levels are sufficiently high (8.0+ TA, 3.35 pH), and the fruit is very clean, SO_2 additions are probably not necessary. Many decisions depend on winery size and the degree of care a winemaker is willing to undertake in watching fermentation and other practices in the cellar.

Participants agree that a premium must be paid somewhere, either in the vineyard with the pickers or after grapes are in the gondola. A sorting table is used at Ridge, but only in the relatively rare case when grapes show signs of mildew or bunch rot.

Interpretations

Dyer notes that there are varying interpretations with NI, as with any technique, and therefore varying effects. "If one pitches other tanks from a NI fermentation, there is already a selection of strains that will minimize the effect of the strains that tend to appear early, which are later dominated by alcohol-tolerant strains.

"Also, at Sterling, we are not adding SO_2 prior to fermentation, which would select out SO_2-sensitive strains. I prefer to just let what is present on the grapes go to work. Is this risky? I think not, as long as the fruit is sound, which is the norm in our climate.

"In 1992, after experimenting with NI over several vintages, I decided to use NI for all our fermentations, but I was prepared to abandon that position if I saw problems develop. Now, after three vintages, I have seen no greater incidence of problems such as stuck fermentation, high acetic acid levels, or H_2S, so I remain in a 100% NI approach, without cross-inoculating or SO_2 addition pre-fermentation."

We now believe that, with NI lots, inoculating early for MLF is a mistake.
— Bob Bertheau

If it's true NI, each tank must be allowed to start on its own.
— John Williams

Stuart referred to the European tradition and the belief that fermentation is completed by a progression of yeasts from Kloeckera to Hansenula through multiple strains of *Saccharomyces*. It would seem that what has become traditional practice in France short-circuited that concept. California winemakers interviewed have returned to a strict definition and do not pitch tanks.

Risks and fears

Dyer notes that many winemakers have unrealistic fears of NI, and believes that many of the risks attributed to it can be avoided by paying attention to the nutrient status of the must.

Fletcher believes that NI primary fermentations are not unlike indigenous malolactic fermentations (MLF). Many wineries prefer in-house strains and have taken means to reproduce these populations. He predicts that down the road, this may happen with yeast populations.

Since 1969, Draper has not inoculated for MLF in red wines and only occasionally in Chardonnay. He suggests if it works and you like what's working, do it. If it doesn't work or if you don't like it, use a culture.

Henry reports that, in 1989, Robert Mondavi Winery conducted its first NI experiments with Pinot Noir. "We were very skeptical," she admits. "The reason why, was a question of quality enhancement. Other respected pros in the industry were doing it and it was working."

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davi increased the number of NI lots in the next harvest and tried NI with Chardonnay, Cabernet Sauvignon, and Merlot.

In 1991, Mondavi conducted a NI trial with Cabernet Sauvignon, adding 75 ppm SO_2 to crushed grapes. Very little difference in flavors were noted against Prise de Mousse (PDM), the cultured yeast of choice for 10 years for all varietals. To date, NI Pinot Noir has shown the greatest difference in flavor profile. In the 1994 harvest, 100% of the Pinot Noir was NI. The Reserve and Carneros-designated Pinot Noir have been 100% NI. Chardonnay is up to 40% NI.

We were very skeptical.
— Terry Henry

If you work backwards from the wine and its quality, the benefit of multiple yeast strains stands out.
— Derek Holstein

Ethyl acetate and Brettanomyces

Stuart admits that a primary risk concern is not only stuck fermentation, but also the development of off-aromas and flavors resulting from unidentified and/or unexpected fermentation yeasts. High levels of acetic acid and ethyl acetate may develop that secondarily stop fermentation. Reverse osmosis has been used to correct tanks developing these problems at some wineries. Once the VA is lowered, fermentation often resumes.

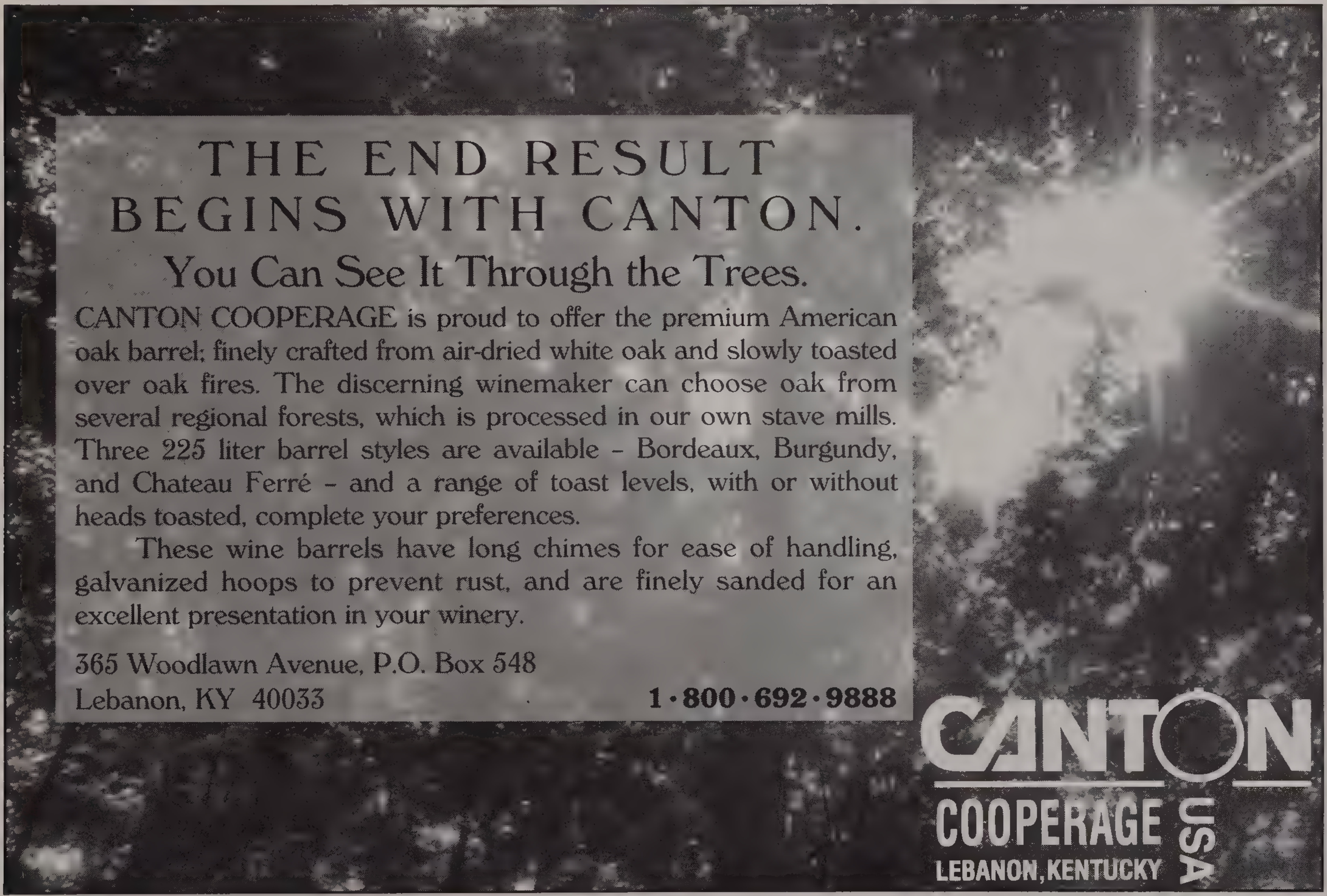
"The cavalier attitude towards NI reminds me of parents who grew up free of polio and diphtheria and are now neglecting to vaccinate their own children for these diseases because the parents haven't known them," Stuart adds.

Draper responds that ethyl acetate has not been a serious problem at Ridge. He doesn't like *Brettanomyces* character in red wines and takes measures to minimize levels in the winery. "We've been more careful in the winery; it's as simple as that," he comments.

Dyer cites some experimentation over the last few years which indicates that timing of SO_2 addition may be related to Brett development. "We found that the later the SO_2 addition to NI-fermented Pinot Noir (which had completed MLF in barrels), the lower the R.S. (by glucose/fructose), and the lower the ultimate Brett population. It seems that by allowing the NI-yeast to continue metabolizing for months, no nutrients were left for Brett."

A suggestion that the easiest way to eliminate Brett is the use of dimethyl pyrocarbonate (DMPC) was rejected as an unwarranted addition. The knowledge that it breaks down after 24-hours, did not satisfy the "naturalists" in the discussion.

Bertheau suggests that Brett blooms can occur with increased cellar temperatures in the summer. He also notes that there are increases after aerative racking.



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Yeast population source

In 1992 at Robert Mondavi Winery, the question arose, is it possible that NI tanks were seemingly going on their own due to high populations of PDM in the winery? Samples were sent to a lab (Montreal, Canada) which was able to detect PDM. Results showed less than one tank in ten had that strain.

From this information, Mondavi staff assumed that it was native *Saccharomyces* on the grape skins that were responsible for fermentation.

"How do you know that the yeast is on the grape skins?" Stuart asks. "Couldn't this be winery microflora? Before PDM, other yeasts were used at Mondavi."

"That is a possibility," Henry responds. "But last year, we worked with Dr. Robert Mortimer." (See "Yeasts isolated from spontaneous fermentations of grape musts in California/Italy" page 7.) Mortimer was given samples of four different Cabernet Sauvignon fermentation lots. He isolated three to five strains of *Saccharomyes*, all different from one fermenter to the next, two of which had must from different, but adjacent, Tokolan vineyard blocks. Isolation of diverse strains is very convincing."

Draper explains that because *Saccharomyces* are difficult to isolate on grapes a UC-Davis PhD., Alessandro Martini, has claimed that the yeast do not come from the vineyard, but only from the winery. To examine this theory, Ridge flushed its equipment with sterile filtered water after crushing grapes, plated the water and found a large variety of yeasts. They thoroughly washed the contact equipment, plated again, and found virtually no growth and no *Saccharomyces*.

Must run through the equipment after this washing was plated from the fermenter every 24 hours. Initially, the plates showed a predominance of Kloeckera with approximately 20% *Saccharomyces*, but by the third day, *Saccharomyces* was dominant.

"To further confirm the origin of the wine yeast," Draper noted, "We collected berry samples throughout the vineyard, crushed them aseptically away from the winery and saw the same pattern of uninoculated fermentation." He concludes that, "With well-washed equipment, the yeast that carry out fermentation come from the grapes and though there are many wine yeast in the winery, especially by the end of harvest, they originate in the vineyard."

Dyer believes that the movement towards more progressive "sustainable agriculture" methods has resulted in larger yeast populations surviving in the vineyards. "Over the last three vintages, we have fermented a total of between 14,000 and 15,000 tons, all with NI, and all without SO_2 addition pre-fermentation. Clearly there is sufficient indigenous yeast on the grapes, especially if it is not suppressed with SO_2."

However, Dyer notes that fermentations start more quickly as the season progresses, indicating to him that a cellar population of yeast does increase throughout the season.

Getting back to risk factors, Bertheau points to Chardonnay with respect to yeast and MLF. With PDM, a winemaker could count on the front barrel being the

Portrait of the Artist's Mother (detail) by Albrecht Dürer dated 1514.

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same as the 48 behind it in the stack. "With NI, this is not true," he emphasizes. "Barrels, at times, are all over the board with respect to sugars and malates. NI requires more monitoring. We have seen that the SO_2 addition to the juice should eliminate some of this variability."

Juice nutrients

DAP (diammonium phosphate) was not in winemaking vocabulary 10 years ago. "It's still not used at Mondavi," Henry says.

Dyer, who initiated the nutrient thought earlier in the discussion, is using an ammonium ion probe to analyze each fermenter, but considers this might be unnecessary. "I am interested in following the nutrient levels in each vineyard. But practically, this is not necessary.

"I find we add two to four pounds of DAP per 1,000-gal to correct those lots with less than 150mg/L Free Amino Nitrogen (FAN). Now that it's been confirmed DAP is unrelated to ethyl carbamate formation, I see no reason to shy away from recipe additions of DAP if the nitrogen levels aren't easily measured.

Emphasizing the importance of ensuring a sufficient must nitrogen level when utilizing a NI-fermentation, Dyer cites his experience with two low-vigor vineyards.

"Typically," says Dyer, "Three Palms Vineyard and Diamond Mountain Ranch have low levels of FAN in the range of 15 to 30 mg/L. When we were adding large inoculums of cultured yeast, there were occasional stuck or sluggish fermentations with grapes from these vineyards. As we switched to NI, we found that there was a greater incidence of sluggish fermentations, presumably due to the low initial population levels, but that this was easily corrected by adding must nitrogen."

Bertheau says that at Chalk Hill, analysis for ammonium ion is made and states that the winery is adding "cocktail" nutrient (Lalvin's Fermaid) at a rate of 2-lbs/ 1,000 gal. The product is 30% DAP and the winery adds DAP to bring the total amount to 150ppm. Nutrient experimentation was expanded in 1994.

VA, stuck ferments, and diacetyl

Holstein says that he experiences difficulty completing fermentation in some vineyard lots with nitrogen deficiency. He has not had H_2S problems, but the wine has elevated VA. In lots that traditionally poked along, he began to add DAP and the VA problem disappeared, but consumers didn't like the style change to a "squeaky clean" wine.

Bertheau states the belief at Chalk Hill, stuck ferments are not specifically nutrient-related, but it's more interference with ML bacteria. In 1994, 30ppm SO_2 was added across the board. For reds, it's added to the fermenter on harvest day, but for whites, it's added after a 24-hour juice settling in tank. Winemaker Dave Ramey is a big believer in getting oxidative activity early. Chalk Hill's experiments showed that when SO_2 suppressed ML bacteria, fermentations did not stick.

"The French have always said don't do simultaneous primary and MLF because you'll have stuck fermentations and VA problems," Bertheau continues. "When we used PDM, we 'laughed' at them, but

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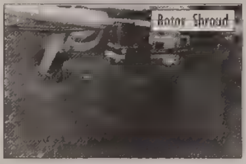

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in NI ferments, we began to see that they might have been correct all along. We now believe that with NI lots, inoculating early for MLF is a big mistake. Beginning in 1993, we went to NI for both primary and ML fermentations. The only lots we had trouble getting through MLF were the inoculated lots of yeast experiments."

The issue of adding ML bacteria during primary to better integrate diacetyl came up. "Stirring the yeast has a big role," Bertheau comments. "At Chalk Hill, the yeast is stirred weekly during MLF. Live yeast resuspended in the media helps because the enzyme diacetyl reductase is still at work as long as there is some yeast viability."

Dyer has observed that long, slow MLF in conjunction with periodic yeast stirring seems to result in lower apparent levels of diacetyl. "It interests me that the conditions and practices one might find in a typical Burgundian cellar — uninoculated MLF taking place over an extended period in a cold cellar — seems to result in a MLF more successfully integrated into the wine. Perhaps diacetyl is being metabolized and transformed faster than it accumulates."

"In every Chalk Hill experiment, we found that the yeast in NI lots integrate the malolactic and diacetyl better than the inoculated lots," Bertheau reports. "We believe part of that is due to the long, drawn-out fermentations. PDM fermentations can smell of diacetyl, but we've never had NI lots with overt diacetyl."

Inoculations

Draper notes that many early trials of NI fermentations in Chardonnay were comparisons with heavy (one to two lbs/ 1,000 gal) PDM inoculations. He refers to PDM as an industrial yeast not isolated from wine brought into solve certain industry problems. He wonders if comparisons are being done with low (⅛ to ¼-lb/1,000 gal) inoculations using a true wine yeast such as Montrachet.

"In 1993, Chalk Hill tried the handicap," Bertheau responds. "In experiments, low amounts of PDM were used in a more 'apples to apples' trial. Lots inoculated with 2-lbs of Montrachet were compared to ¼-lb PDM and it was found that the inoculation level of PDM really didn't matter.

"Fermentation length was the key element and the Montrachet, which took longer, did mimic NI in many ways. In some Chalk Hill tastings, Montrachet lots did very well and even won, but we found it to be less dependable than the NI ferments," concludes Bertheau.

At Silverado, Stuart has preferred Montrachet-fermented lots to PDM which he called "fat." He maintains that with PDM in a cool cellar the winery has had two- to three-day fermentations that went from 23° Brix to dryness.

Fletcher questions whether doing a cold soak and then inoculating would have the same effect.

"If you work backwards from the wine and its quality, the benefit of multiple yeast strains stands out," Holstein maintains.

"The selling point for me is having a diversity of yeast strains by not inoculating," Dyer summarizes. ■

PWV *thanks Sterling Vineyards, Calistoga, CA, for hosting this discussion.*

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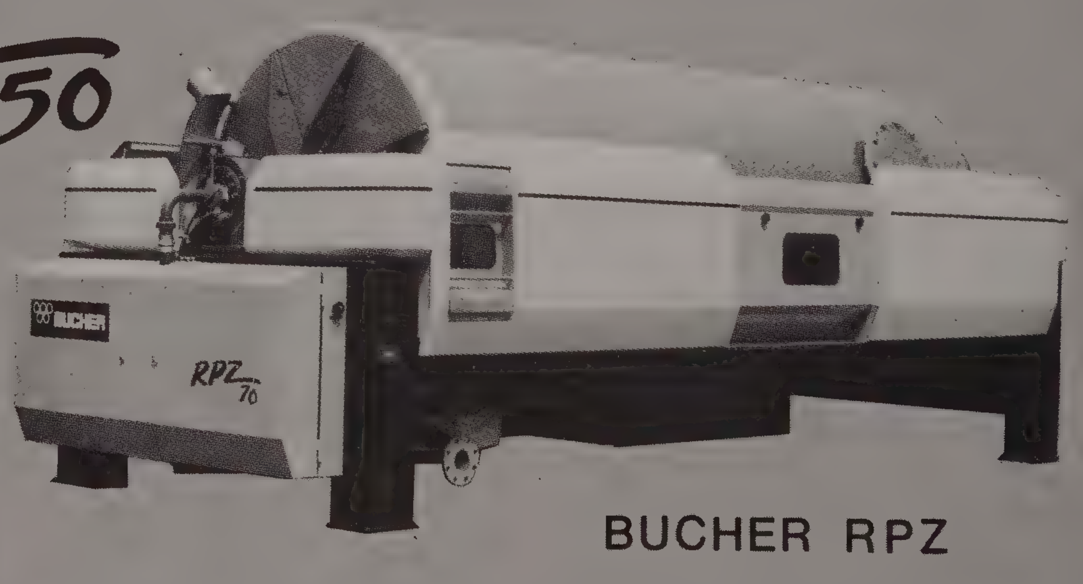

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MARKETING SONOMA VALLEY WINES

The *bigger* the pie, the *bigger* the slice

by Millie Howie

There is a statistical fact, often illustrated with drawings of two pies, one small and one larger. The fact is, if a wine producer enjoys a 10% slice of the smaller pie, as the pie grows, so does the slice. It will, of course, remain a 10% slice, but if the full pie has grown by 200%, so has the slice.

In the Sonoma Valley of California, the vintners and grape growers — largely through the influence of Jim Bundschu, owner/president of Gundlach-Bundschu Winery, Vineburg, CA — are looking at increasing their whole pie by conducting an educational program to improve the wine knowledge among local restaurant service staffs, while promoting the wines of their own historic valley.

Through their Restaurant Staff Wine Service Training Program, now five years old, the Sonoma Valley Vintners & Growers (SVV&G) are teaching the men and women who serve wine at Sonoma County restaurants about wine. Not just wine produced by SVV&G-member wineries, but wines of any brand.

"We had the idea that the Sonoma Valley wait staffs were people who left a lasting impression on the consumer," explains Bundschu. "No matter how much effort we put into growing grapes and producing the wines, if the server did not present and serve it properly, all other efforts were wasted."

"We took it upon ourselves to hire a professional to go to nearby restaurants and provide the necessary instruction and information. Later, we expanded the program to any restaurant within the county. We'll go anywhere, from the restaurant with only two wines on the list to those with the most extensive and formidable lists."

In the beginning

A preliminary version of the concept was tested in 1986, with consultant Bob Mosher and Gundlach-Bundschu staffer Jane Leach as the first leaders. They worked only with restaurants in the valley. Once the idea took form and expanded throughout the county, SVV&G hired a permanent trainer, and wine educator Betsy Fischer took over the program in 1990.

Fischer designed the current program, relying on her own experience in restaurant management and staff training. She customized the training for each individual restaurant, using the establishment's own wine list. The key to getting the staff and management interested, she insists, lies in offering a tailored approach, not purely generic information.

Fischer created a data base from the telephone book Yellow Pages and from her own restaurant sources and came up with a list of 200 restaurants, then narrowed the list to the 128 most likely to respond to the program. The aim of the SVV&G was to carry the training to 50 or more restaurants/year.

Original contacts were made by phone. "Because the program is free, you would think everyone would jump at it," comments Fischer. "Not only was it free, but we wanted to present it at their own location, at their convenience, with the Sonoma Valley wines already on their lists. You just couldn't make it any more convenient. Yet, for two years, I made an average of eight calls to line up each training session."

Laura Whiting, restaurant wine educator, who took over from Fischer in mid-1993, concurs and adds, "In about 25% of the calls, people are receptive. The other 75% have to be convinced." To make the task easier, Whiting designed a mailer, "The Best Kept Secret in the Restaurant Business..." which describes the free seminar and includes a response form for restaurants to indicate their interest in having the trainer call for an appointment. The mailer has brought a good, though not overwhelming, response.

The SVV&G commits $5,000 from member dues annually to the program. This amount covers all costs of printing and postage for a brochure and the instructor's fee and incidental expenses. Each winery member contributes one case of wine to the program yearly.

Photo by Fred Lyon

SVV&G has found that offering training to wine servers – as Laura Whiting does here – improves wine sales.

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How the training works

Whiting asks the restaurateur for the wine list and menu, and information about the level of the staff's wine knowledge and interest. The sessions go better, she has found, if the restaurateur will select menu items and prepare tastes to go with the various Sonoma Valley wines she brings for the tasting. One of the most successful of these pairings, she recalls, was at The Olive Garden in Rohnert Park, CA, whose chef prepared pasta in an herb sauce that was very exciting with a Sauvignon Blanc and fried calamari which was a natural with a sparkling wine.

Working on pairing gives Whiting the opportunity to demonstrate how different types and styles of wine can enhance dining pleasure. She always asks for enough glasses to taste four to six wines without having to dump and rinse, so that everyone can compare the aromas and flavors with all the food dishes.

After receiving a restaurant wine list, Whiting goes to the SVV&G wine cellar and picks wines which appear on the list regularly. If there are none, using the menu as a guide, she selects wines she feels will be appropriate with the cuisine. To the wines, she adds some basic tools: the video *Wine Server Selling Skills*, the Sonoma County Grape Growers Association appellation map, and enough copies of "Sonoma Valley Winespeak," prepared by Betsy Fischer, for each participant. Winespeak is a handbook for restaurant personnel featuring the wines produced by SVV&G members.

"I introduce myself and tell them about the Sonoma Valley, which I represent, then I say, 'I'm not here to sell wine, but to help you sell wine and food.' I try to make it a blend of education and fun, and I always assure them that there are no dumb questions."

Using the Winespeak booklet as a text, Whiting establishes a comfort level, discussing the wines and emphasizing phonetic pronunciation. "If you learn nothing else," she tells them, "you need to be able to pronounce the names of the wines."

She stresses hands-on interaction with the group by having various members present, open, and pour the wines. "It is important to talk to the customer, and establish rapport," she tells them, "even if it is only to ask them where they're from. The most important thing to com-

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municate to the consumer is that whatever they like is, for them, a good wine, that sweet is not bad, and that it isn't always red wine with meat."

Frequently a winegrower or winemaker will participate in the training session. Their presence, particularly where the staff may already be quite knowledgeable, allows a more in-depth exploration of wine growing and production.

At least one SVV&G member is always present when the program is presented to a Sonoma Valley restaurant, because the SVV&G believes it is important that local restaurateurs and their staffs get to know the growers and vintners as people, not as a mysterious entity.

A typical session lasts about one hour. Attendance at the seminars range from four or five people to as many as 30. Some restaurants, to be sure all staff members have an opportunity to attend, split the training into two sessions. Smaller restaurants, in the same locale, may gather two or three groups of servers together.

Most classes are conducted before a restaurant opens or between the lunch and dinner hours to catch both shifts of servers. But the emphasis of the program is to offer the training when it's convenient for the restaurateur.

Restaurant feedback

"It is invaluable to have the SVV&G participation," feels Lynn Rogers, manager of the Grill at Sonoma Mission Inn. "Even when you are in the business of buying, selling, and serving wine, there are so many questions you can't answer without this sort of input.

"Because of our large staff, we did two one-hour sessions, back to back, and having winemaker Steve MacRostie and grower Bob Sangiacomo present for both sessions was a real plus. Our people are very inquisitive about wine, and they're not afraid to ask for information."

Lauri Darling, owner of Cafe Lolo in Santa Rosa, emphasizes staff education, and accepts any offer of training help. "I liked the material Laura presented," she says, "and the way it was handled in this program was better than any other we have had. I particularly appreciate the fact that she doesn't represent only one winery, and that the instruction is not tied in any way to sales."

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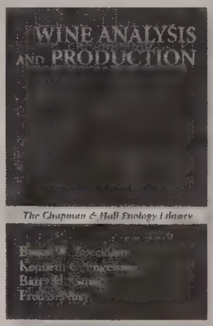

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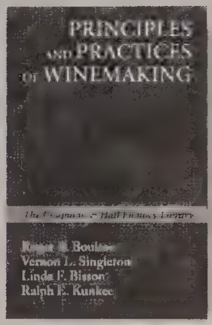

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Wine server training

Santa Barbara County Vintners' Association

Growers and winery members of the Santa Barbara County Vintners' Association (SBCVA) are excited about their Wine Server Certification Program.

The program began after a meeting held by the SBCVA's Local Promotions Committee in conjunction with managers and owners of Santa Barbara county restaurants. The vintners asked the restaurateurs what sort of training program would help heighten the service staffs' knowledge of and comfort in presenting and serving wine. A series of eight seminars presented monthly, the program was designed around their suggestions.

The focus was primarily, but not exclusively, on Santa Barbara wines, according to Pam Maines Ostendorf, SBCVA executive director. Separate sessions dealt with grape varieties, viticulture, winemaking, matching foods and wine, with a panel discussion followed by a tasting of the wines of Burgundy, Bordeaux, Germany, Alsace, Italy, and Rhone. The concluding session concentrated on wine service.

Each seminar was presented twice, once in the morning and once in the afternoon, in order to make it possible for people working any shift to participate. Any attendee who attended at least six of the eight presentations and served a one-day internship, received a certificate and a lapel pin to indicate that he/she completed the program. For the internship, participants worked in a winery tasting room, spent a day with a winemaker, assisted a winery at a special event, or worked during harvest at a winery.

Members of the panels consisted of local growers, winemakers, distributors, and retailers. All were volunteers, and the only wines which had to be purchased for the tastings were the European wines. Santa Barbara wines were donated by the participating vintners.

For one meeting, Chef Carrie Nahabedian of the Four Seasons Biltmore Hotel prepared meats, sauces, and desserts for pairing with the foods. The Biltmore also provided the meeting room and all the glasses, which for some presentations, ran as high as 12 glasses/person; nearly 1,000 glasses.

Laila Rashid, publicity director for Santa Barbara Winery, served as coordinator and moderator for the entire program. She estimated that more than 300 people, most of them chefs or members of the wait staff from 35 or 40 restaurants attended, and that at least 40 received certificates.

For some of the "students", this will mean a little extra money in their pay envelopes, since several restaurants expressed their satisfaction with the program by offering a small increase in the hourly rate of pay for anyone receiving the certificate. Many of the restaurants paid their staff for the time spent at the seminars.

"We were very happy with the response," says Ostendorf. "It's been exciting to see how the entire hospitality community has become involved and has benefited.

"We even had a manager from one of the Napa/Sonoma Piatti restaurants attend the program. He just happened to be in the area, filling in temporarily for a local manager, and he was very complimentary about the spirit of cooperation which had made the program such a success."

People interested in having a seminar on Santa Barbara County wines presented to wine buyers/servers outside of Santa Barbara County, are invited to contact: Pam Maines Ostendorf, Executive Director, Santa Barbara County Vintners' Association, PO Box 1558, Santa Ynez, CA 93460, tel: 805/688-0881. ■

Craig Clark, general manager of The General's Daughter in Sonoma, appreciates that the sessions vary from restaurant to restaurant. "I've attended three or four presentations," he says, "and I learned something new each time. Our staff is quite knowledgeable, and Laura took that into consideration and tailored her presentation to their level."

Gretchen Neuman, owner of the Northwood Restaurant in Monte Rio, CA, appreciates the flexibility, "Since we serve breakfast, lunch, and dinner, it isn't always easy to schedule something like this, so we're restricted to holding classes in the spring or fall, when we close earlier and can ask the crew to stay in the evening."

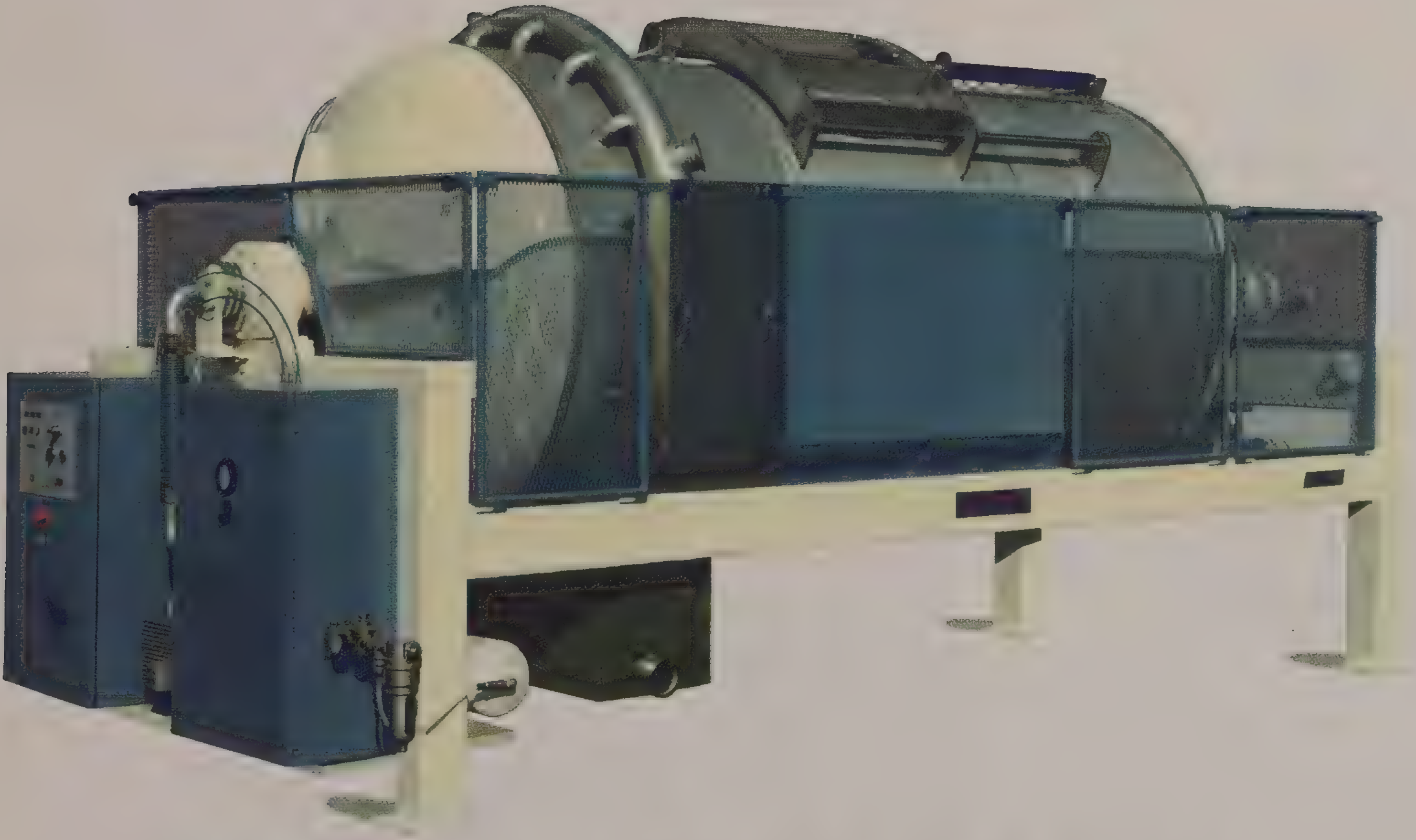
Neuman's comments about the program are typical of those made by restaurateurs who have taken advantage of the training. "Any training is valuable," she says, "but the instruction offered by the Sonoma Valley growers improves the level of service overall. Some of my staff members have been with me 14 years, and it was important for them to have a refresher course. It familiarized new hires with the different varieties of wine and why each was on the list. It even sharpened my own knowledge."

"I think one of the greatest benefits was that Betsy Fischer, who trained our staff at the Bayview and Tides Wharf restaurants, made everyone feel very comfortable about presenting and serving wine," comments Carlo Galazzo, general manager. "The instruction was at a very professional level, and everything was explained so that it reached each member of the staff at his or her individual level of knowledge."

Presenters and training recipients agree that the program improves a restaurant's wine sales. Unfortunately, there is no mechanism in place to track and record the degree of sales improvement. "There is no statistical information," Fischer states, "but from every comment I have heard sales have definitely improved." Whiting's experience has been the same.

Chris Finlay, SVV&G executive director, concludes, "We're not trying to hard-sell anything. We're just trying to educate. Placement is a nice bonus, but that's not why we're doing this. Even though it's a Sonoma Valley program, there is a generic need for information. We're just filling that need." ■

PEAK.



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Barn Owls in the vineyard

Forging a partnership with Nature's rodent-control specialists

by Greg Tatarian
Wildlife Research Associates

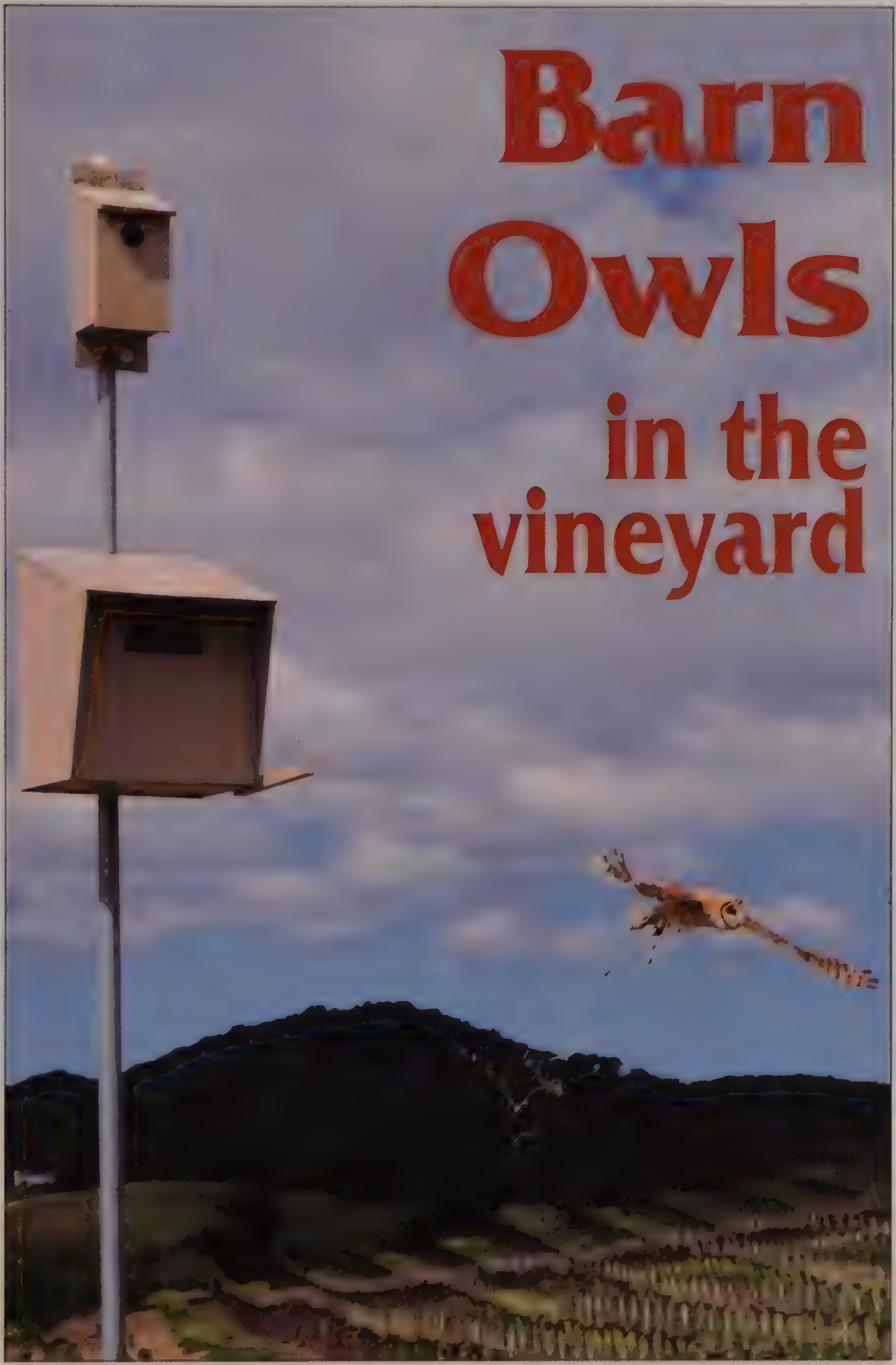

Photo by Greg Tatarian

Female barn owl, trailing nesting material, flies from large nest box. Kestrel nest box above.

Draped in the protection of night, a small, furred head pops up quickly from the two-inch hole at the surface of the mound. The pocket gopher searches carefully for predators, finds none, and commits to action. The new growth of tender vine shoots and ground cover between the vine rows is irresistible.

Waiting patiently 20 feet away, a barn owl searches with its two great senses — sight and hearing. Its face — covered in feathers which form a kind of antenna dish shape — funnel the slightest sounds into the ear canals, the openings of which are placed asymmetrically — one lower than the other — on opposite sides of the owl's skull. Target acquisition by triangulation — Nature's Way. The eyes, packed with night-vision enhancing rods, detect movement in light more tenuous than could any human's.

The pocket gopher will not hear the owl's approach. Equipped with soft, hair-like fringes on the vane of each flight feather, the owl can flap and glide to its prey without a hint of audible or even ultrasonic sound.

Within seconds, the owl spots the small mammal, and with one powerful wingbeat, lifts off its perch and glides swiftly toward the unlucky gopher, thrusting its long, slender legs into the ground cover. Its long toes and talons grip the struggling creature. Soon, prey will sustain predator.

Integrating nature into pest management

The evolution to certified organic and sustainable agriculture leaves behind problems associated with chemical-based farming, but brings with it other challenges. Rodent populations in bare-ground vine rows are usually much smaller than the numbers that can build up by taking advantage of the shelter and food that cover crops provide.

Whether rodenticides have been restricted by choice or by local regulations, many wine growers are using the same biological approach to rodent control as for pest insects — relying on natural predators. In this case, birds of prey (raptors) are being encouraged to nest and hunt in vineyards, orchards, and cropland to reduce pest populations.

Wildlife managers have provided nest

boxes for American kestrels (the old name was sparrowhawk) and barn owls to encourage higher raptor populations and diversity and to promote control of rodent populations in farmlands — even in the rights of way alongside interstate highways!

While this may seem a new approach to many, it has been used successfully by farmers in Great Britain and Europe for decades. In fact, the culturing of resident populations of raptors was popular in the United States for many years before the widespread use of pesticides.

So, while the idea is not new, agriculture is getting serious about providing habitat for cavity-nesting raptors. Recently, farm conferences have featured presentations on the subject, short articles have graced the pages of many grower publications, and the University of California Cooperative Extension has crafted a nest box survey of growers currently involved or interested in learning more about integrating raptors into IPM programs on their ranches.

Partnering with barn owls

For some very good reasons, the raptor most often working in partnership with agriculture has been the barn owl (*Tyto alba*). One of the world's most frequently studied raptors, the barn owl has an unusually widespread distribution, occurring in North and South America, Europe, eastern Europe, Africa, southern Asia and Australia.

This owl wears distinctive but variable plumage; females are much darker than males. Colors range from gray and buff to golden and white, always with delicate markings in gray, black, and white.

The heart-shaped facial disk, described earlier, is critical to the barn owl's hunting success. You won't hear them "hoot" like other species. Listen, instead, for the distinctive screeching sound. The barn owl is not as large and powerful as the great horned owl (the "hooting" kind), which is commonly found in many parts of California. The barn owl also differs in several important ways which make it useful to growers.

First, the barn owl is a cavity-nesting species, as opposed to a nest-building species. In the absence of man-made cavities — such as barns, abandoned buildings, and grain silos — owls choose cavities in trees, where large branches have broken from the trunk, or in non-native trees with dense canopies, such as palm trees. This is good, because it's fairly easy for growers to make a box with a hole in it that will appeal to nesting barn owls. Much easier than to build a stick-nest of owl-pleasing shape and dimensions, and heave themselves up a tree to plant it in the branches!

The second important feature of barn owls is that they breed prolifically. They usually breed throughout their short lifespan, often beginning their first year,[1] laying from five to 11 eggs per clutch, and sometimes producing two clutches per season. One Utah study showed a strong tendency toward breeding in *only* the first year, suggesting the pro-

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duction of a large number of young may be necessary to sustain a breeding population.[2]

Most species of wildlife which breed in large numbers have evolved to do so because they suffer a high mortality rate — either from a short life span, or because they are an important prey item to other animals. Barn owls are no exception. They have a natural life span of only about four years in the U.S. and first-year mortality rates of 65% to 75%. These rates decrease as the owl ages, with second year mortality rates around 50% to 60%, and 30% to 40% in the third year.[3]

Because barn owl populations constantly turn over — between young looking for new nest sites and adults frequently moving to new nests they are more likely to see the "Farm Helper Wanted: Free Room and Board" sign out front of the grower-supplied nest box.

Also, barn owls defend only a relatively small territory[4] and are less aggressive than other species such as the great horned owl or diurnal (active during the day) raptors such as the red-tailed hawk.[5] Having more owls per acre increases the rate at which rodents are transformed to pellets.

Aren't barn owl populations normal in my area?

The barn owl is normally associated with grasslands, an important foraging habitat, and production of certain crops has actually increased some foraging areas. However, the loss or conversion of riparian habitat and suitable nesting trees has become a powerful limiting factor to populations of barn owls. Large vineyard blocks can severely limit the ability of owls to nest, so they go somewhere else to live and forage for prey.

Growers can compensate for this loss of nesting habitat and capitalize upon the barn owl traits described earlier by providing nest boxes. Nest boxes not only help achieve normal nesting populations[6] but, more important, can increase breeding population density to levels higher than typical in natural habitat,[7] as the lack of suitable nest sites can limit population.

What do barn owls eat?

The diet of barn owls varies regionally, but generally in North America, key prey species include voles (*Microtus sp.*), pocket gophers (Family **Geomyidae**), shrews (Family **Soricidae**), white-footed mice (*Peromyscus sp.*), pocket mice (*Perognathus sp.*), harvest mice (*Reithrodontomys sp.*), kangaroo rats (*Dipodomys sp.*), wood rats (*Neotoma sp.*), rice rats (*Oryzomys sp.*), and Old World rats and mice (Family **Muridae**).

In the course of our business as wildlife consultants, most growers have told us that pocket gophers and voles are the two most prevalent pests in their vineyards. In vineyards where cover crops are mowed, as opposed to turned (disced) back in, many growers report higher levels of gopher activity than in clear-cultivated vineyards.

In California, studies show that voles

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comprise the majority of prey consumed by barn owls, while pocket gophers are the next-most consumed species.

How many voles or gophers do barn owls actually consume? Each adult barn owl consumes the equivalent of about two voles or one gopher each night, but the presence of adults isn't the whole picture. By providing suitable nesting habitat, not only can growers increase the adult population throughout most of the year, in the spring, the population of owls swells with the hatching of the young, whose voracious appetites must be satisfied by more hunting.

Predation rates in a successful nest box program will be *much greater* during the months when young are in the natal area, being fed by the adults and learning how to hunt. This means that one pair of barn owls successfully raising an average clutch can consume the equivalent of 1,000 gophers a year!

Will barn owls eat every gopher in your vineyard? Not likely. Predators either expand their range or move to new territory when prey populations drop too low to sustain the adults, and breeding is affected when prey populations are too low to support the survival of a normal clutch of young. Besides, owls prefer variety in their diet. It's balance we're after — not eradication. Predator-prey relationships are dynamic, and populations of each fluctuate constantly.

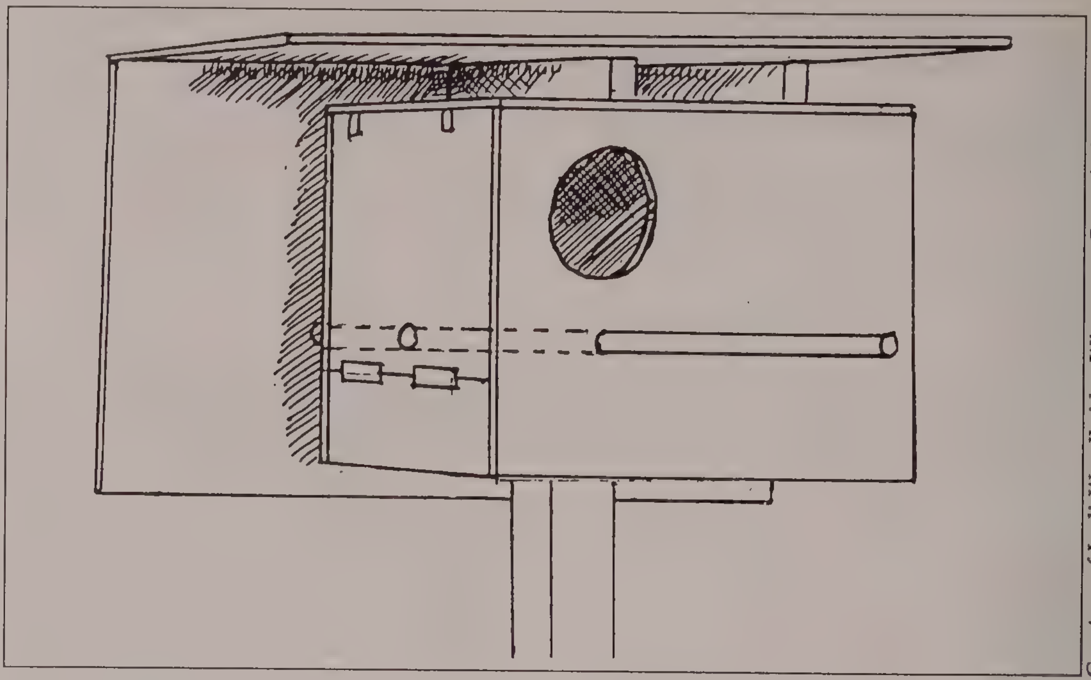
Proof is in the pellets!

When raptors eat their prey, the indigestible parts, such as fur, feather and bone, are regurgitated about 12 hours after the meal. By dissecting these "pellets," biologists can identify the remains to determine the diet of the raptor.

In late summer 1994, Wildlife Research Associates performed pellet analysis of prey items at two sites where we had provided several nest boxes: Shafer Vineyards' Duhig Road ranch and Saintsbury's Brown Ranch vineyard, both in the Carneros region of Napa, CA. We also analyzed owl pellets from one natural nest site in Novato, CA.

Pellets analyzed from three nest boxes at Shafer's Duhig vineyard revealed about 75% Botta's pocket gopher (*Thomomys bottae*), about 15% meadow vole (*Microtus californicus*), with the remainder unclassified.

Analysis of pellets from one nest box at Saintsbury's Brown Ranch showed a higher percentage of meadow vole — about 65%, with 15% Botta's pocket gopher, and the remainder unclassified.


Courtesy of Lodi-Woodbridge Winegrape Commission

This drawing of a barn owl nest box on a pole shows the shade baffles, dowel perch, and clean-out door.

Pellets collected from the natural nest site, in a palm tree in Olompali State Park in Novato, CA, showed a diet high in meadow voles.

Creating your own raptor program

The first step in developing a nest project should be to assess the quality of owl foraging habitat, such as the type and density of cover crops and vegetation surrounding the vineyard. Tall crops and grass make it more difficult for the owls to hunt, though their keen hearing allows them to find and catch quarry in cover tall enough to hide their prey. Rows of mowed cover crops or alternating rows of planted and turned-in cover crops provide "edges" that allow predators more opportunities to catch prey.

Photo by Greg Tatarian

Barn owl pellets beneath a nest box confirm the raptor's gopher diet.

Next, decide where to place the nest boxes. Facing boxes towards trees at a distance of about 10 to 15 feet will provide shade and shelter from wind, and convenient branches that the young can fly to when fledging. Boxes can be placed right out in the vineyard, but if you do so, we recommend a perch on the front of the box to assist fledglings. You should paint or install shade panels, as described below, to protect from overheating.

You should place more boxes than you would expect to be used. This provides the owls a choice, and because owls will often change nest sites, allows any pair returning to the vineyard to choose another nest site.

How many nest boxes to install depends upon your time and budget and, to some degree, reasonable expectations of occupancy. You can do this in stages in what I call the "phased project" approach. Plan for a full complement of boxes, and build and install them as your budget allows.

Some sources recommend one box per 10 acres. We recommend placing owl boxes at one per ⅛ to ¼ mile apart. Chances are, they will not all be occupied during any given season — though at Shafer Vineyard's Duhig vineyard where the boxes are even closer together, all were occupied during 1994.

You can obtain designs for barn owl boxes from many sources: your local resource conservation district, Audubon Society chapter, or Soil Conservation Service. Simple designs can work quite well, and we offer several different types to our clients, depending upon geographical location, budget, and other details. Here is some advice for do-it-yourselfers:

As a good rule of thumb, make the box large and roomy, at least 14 inches wide by 18 inches long by 18 inches high. More floor space is preferable — studies have shown nest box size strongly influences frequency of occupation, clutch size, predation risk, risk assessment, and other factors of reproductive success.[8]

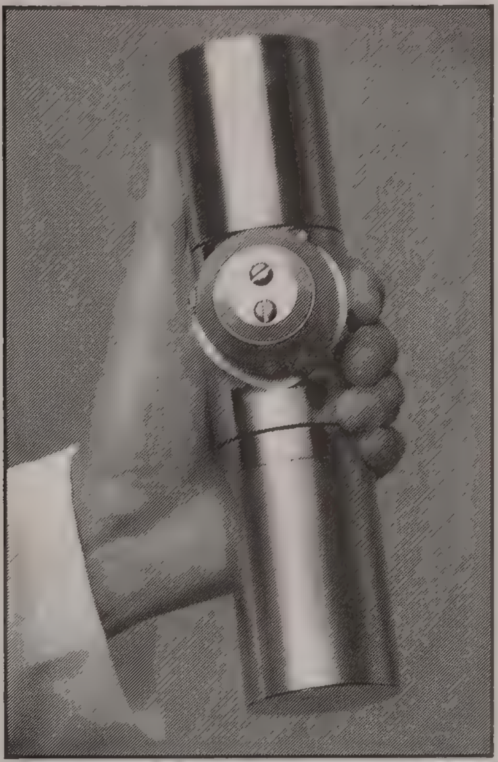
Use ½-inch to ¾-inch exterior grade plywood (sealed or painted on the outside only), and assemble using wood glue and coated deck screws or finish nails. Do not use copper or pressure-treated lumber, as poisonous gases can be produced in certain circumstances. An advantage to a larger box is the added room for a divider or shelf. This serves as added protection for the young from predators and wind.

Taller box designs should include a two-inch by two-inch wood platform extending from the front bottom edge of the nest opening to allow the young an easier perch when fledging. Make the opening about six inches wide and seven inches tall, and place it in the front panel near the upper left corner with the bottom edge between seven and eight inches above the bottom of the box.

While barn owl nest boxes can be placed inside silos or barns, most vineyards are better served when the boxes are mounted outside. In most inland regions of California, nest boxes placed outside must either be shaded with extra plywood panels mounted on the top and west side, attached to one-inch furring strips, or at least painted a light color to reflect heat. We usually paint ours light tan or white.

Ventilation holes at the top of the sides and back, near the roof, are necessary for boxes in any location. The opening of the box should face east to southeast, protecting the interior from prevailing winds and summer sun.

The floor should have ¼-inch to ⅜-



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inch holes to allow moisture to drain. Nesting material must be provided by the grower, since barn owls don't do much to prepare the nest, and eggs are easily crushed or chilled when laying directly against the plywood floor. Do not use straw or sawdust, as these retain moisture and can promote disease-causing spores such as *Aspergillus sp.* We recommend using pine or fir wood chips or shavings. Shavings should be removed in October, at the end of each breeding season, and fresh material installed by mid-January.

Predators are a serious threat to a successful nest box program. Resist the urge to save money by mounting the boxes in trees. Squirrels, rats, raccoons, opossums, and foxes can climb up most trees and into barn owl nest boxes. The only exception to this rule, in our experience, is when young, sparse stands of *Eucalyptus* trees are available.

Eucalyptus have the advantage of being straight and tall and — when 30 to 36 inches of galvanized metal flashing is attached around the base — can be safe if other trees are not close enough for predators to reach or jump to the nest tree. Stay away from dense groves however — great-horned owls love *Eucalyptus* and will often prey upon barn owls.The very best way to mount nest boxes is on metal pipe. Boxes must be 15 to 20 feet above ground. We recommend 21-ft. lengths of 3-inch or 3½-inch galvanized pipe for barn owl nest boxes. This allows three to four feet to be sunk with concrete into the ground with 17 to 18 feet of pipe above ground.

Larger diameter wood poles can be used but can be more difficult to find in some areas, though several vineyard managers with whom we have worked have been able to obtain adequate wood poles. Don't forget to wrap the base of the wood pole, starting about three feet from the ground, with 30 to 36 inches of galvanized flashing to deter climbing predators.

Attach boxes to wood poles with large lag bolts and heavy washers, from inside the box — no sharp edges or bolt ends should protrude into the box. Boxes can be mounted to metal pipe with three large U-bolts, with the threaded ends cut flush to the nut inside the box. Another option is to attach wood braces to the box and mount the U-bolts to the braces. Either method requires a stop mounted to the pipe to keep the box from rotating or slipping down the pipe.

When to start a nest box project

The best time to build and install nest boxes is several months before the breeding season. This gives migrating and dispersing owls time to discover the boxes before the season begins.

Barn owl nesting season varies by region and geographic location but generally begins in late January, starting with nest selection and mating behavior. Eggs are laid a few weeks later; incubation takes about 30 days. This period is extremely critical to the success of the brood, so do not disturb the nest, at least until the eggs hatch, but preferably not until the young leave the nest in March or April.

Watch for signs of a second attempt at egg-laying; many owls will lay a second, if smaller, clutch in May or June. In addition to seeing the owls at night, signs of occupation include pellets scattered on the ground; droppings, known as whitewash, on the nest box and on the ground; and clicking and screeching from the owls in or near the box.

Little annual maintenance is required, except to clear out any debris and old shavings and replace them with fresh shavings by mid-January each year.

The success of a nest box program is measured in two ways: first, the occupancy rate of installed boxes; and second, the successful fledging of young from occupied boxes. The occupancy rate for the first year of a program will typically be around 40 to 50%, increasing to perhaps 75% by the second or third season.

Some lucky growers enjoy high occupancy rates immediately, but you shouldn't be discouraged if only half of your nest boxes are occupied — the others serve as a reserve for future pairs, or relocation of existing pairs. If your occupancy rate is lower, you should reevaluate the factors described earlier by speaking with a grower with more success, with local resource agencies, or by consulting a raptor specialist.

Increasing hunting efficiency of raptors

Encouraging barn owls to nest in the vineyard is of little benefit if the owls must leave the vineyard to hunt. In the next **PWV**, we will discuss why you should install perch poles in your vineyard. We'll examine Shafer Vineyards' recent success with perch poles in three of its vineyards and discuss designs, placement, and density.

Also, you will discover another raptor, the American Kestrel, a diminutive, colorful falcon which also nests in cavities and nest boxes, and eats meadow voles, mice, and large insects. ■

Greg Tatarian is a wildlife consultant and co-owner with wife, Trish, of Wildlife Research Associates in Petaluma, CA, an independent wildlife consulting business. Specializing in raptors and bats, wildlife habitat enhancement for agriculture, and urban wildlife damage control, Greg speaks at farm conferences, and holds permits with the California departments of Agriculture and Fish & Game, and Sonoma and Marin counties. For more information, write to 1004 F Street, Petaluma, CA 94952.

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Multi-wine preference tasting

New method to assess wine quality

by L. McCloskey, S. P. Arrhenius and M. Sylvan

Now, in an efficient one-step tasting, winemaking professionals can evaluate wine quality for up to 16 wines. This multi-wine preference tasting, called the MAX-Preference™ method, uses the industry professionals' ability to sort wines and make decisions.

These multi-wine preference tastings have been used in California and Oregon since 1990. They take advantage of the professionals' ability to make production decisions based on preference for one of a pair of wines (*e.g.*, a control against the cellar treatment such as egg white fining). We are proposing that industry professionals' ability to sort by preference can be used to determine a relative ranking. Our multi-wine tasting process, MAX-Preference scorecards and tastings, have been tested with many wines by many wine industry professionals. The multi-wine method converts preference and sorting data into a usable score and quickly and simply produces results as statistically significant as hundreds of pair-wise comparisons.

Problems with past methods

In the past, winemakers seeking evaluation of their wines' quality have used both formal (*e.g.*, UCD "20-point" scale) and informal sensory assessment methods. These quality assessments tend to be based upon hedonics (defined by how a given wine's taste matches judges' current standards of wine quality). However, wine industry professionals routinely evaluate wine style and collectability. The professionals' sense of quality may combine hedonic assessments of a given wine "in-the-glass" and a bias for market expectations the judges may have for a given wine style.

Moreover, hedonic assessments may include judges' bias for a single attribute; for example, industry professionals may have a personal bias for a given Chardonnay's aroma quality because of their own preference for *sur lies* character, or they may give a rating based on how they expect the media may react to the wine.

Researchers at the University of California at Davis recognized early that there was a need for wine quality scorecards to counteract these biases and devised the UCD "20-Point Scorecard."[1] Similar scorecards have been developed in France.[6,7]

All these scorecards use standard attributes (*e.g.*, appearance, acidity) and scalar ratings.[8] Unfortunately, in practice, tasters were free to weight the same factors differently which undermines scorecard consistency. A.C. Noble notes that "seldom will experienced judges rate each category using the weighting assignments listed. Instead, judges tend to evaluate the wine and come up with a final number using their own criteria."[4]

An additional problem is that the sense one group of judges may have of wine quality does not transfer to another group (Herb Stone, Tragon, personal communication).[8] The result is the widespread use of informal methods rather than standard scorecards; in France, for example, each regional office of INAO has a different appellation-oriented scorecard.[7]

Ideally, scorecards should force judges to examine identical factors using the same scale(s).[4] Preference methods are useful when the goal is to obtain a composite response to the sensory properties of wine without the use of ranking by individual judges.[1,10] (In preference methods, individual judges indicate only a positive or negative score for a wine's aroma, taste, or suspected difference.) Perceived differences between two wines with different chemistry are determined from a composite of pair-wise comparisons from all the judges forming a given panel.

Furthermore, preference methods avoid the use of factors and categories and, most times, the need to train the judges. Duo- or trio-tastings are suitable for calculating thresholds and can be useful for identifying chemical components responsible for aroma attributes, but they are time-consuming and require a large number of judges, because they are limited to pair-wise comparisons. There has been a need for a scorecard that assesses quality as determined by wine industry professionals which employs few factors and dichotomizes scoring to gain the scoring advantage of duo- trio- preference tastings. Multi-wine preference tastings offer the best solution to the problems of preference methods that use pair-wise comparisons.

MAX-Preference scorecards

The MAX-Preference Aroma and General Scorecards have several advantages. First, they are much less labor-intensive than duo- or trio-preference tastings. Whereas the multi-wine process can assay 12 to 16 wines in a single sitting of 60 minutes, duo- or trio-preference tastings require 120 pair-wise comparisons from each judge to analyze all possible pairs of 16 wines. Gathering statistically significant results with these other methods typically requires much more judging time at a higher cost than most wineries can afford.

Second, when this method is used by professionals, it has proven successful in selecting for quality. If all judges based their scores on guesswork rather than experience and sensitivity, then mathematically, the expected MAX-Preference score

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**MAX-Preference™ aroma and general scorecards are available free through 1995 from Enologix™, 25 East Napa St., Sonoma, CA 95476. All authors are partners at McCloskey, Arrhenius and Co., Consulting and Research, Santa Cruz, CA and 29 East Napa St., Sonoma, CA, and Marshall Sylvan is a professor of statistics and mathematics at the University of California, Santa Cruz, CA 95065.*

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would be zero or the range of scores would be small. When the score is large (as it is when qualified professionals do the tasting), strong correlation with other quality indicators has been observed. MAX-Preference scores have been significantly correlated ($p<0.05$) with both primary chemical variables (*e.g.*, pH, TA, potassium) and secondary chemistry (*e.g.*, phenolics, higher volatile esters). These correlations suggest that the scorecards are correctly assessing attributes of quality as determined by professionals.

The method has been used as a pre-step to descriptive sensory analysis. Scores have been used to select wines for which there is no large negative bias; and the scorecards have been used to analyze and select terms already used by judges.

MAX-Preference Aroma versus General scorecards

Two scorecards are available, one for aroma and another for overall taste (Figure 1). The scorecards may be used in a one- or two-part method. The one-part method assesses only aroma quality. (Only the Aroma Scorecard is shown.) To assess general quality — the combination of aroma and taste — use the MAX-Preference General Scorecard in the two-part method (not shown).

The two-part method determines aroma first and general quality second, using the MAX-Preference Aroma followed by General scorecards. Good tasting practices must be used in conjunction with the multi-wine preference method, including: removal of visual cues; marked, staggered starting positions to avoid a left to right bias (each taster starts with a different wine); and random letters or numbers to code samples.

MAX-Preference method and calculations

To use this method to judge wines, begin by assembling an even number of wines. This allows for dichotomous scoring, where half the wines are given "+" scores, and half get "(-)" scores. Use instructions printed on the scorecards.

Begin the sensory evaluation process by distributing aroma scorecards to judges. Read the instructions typed on the scorecards to the judges. Judges will first smell, but not taste, all the wines. Beginning with the wine that is singled out on the scorecard with a highlighted letter or number, each judge will sort the wines into two equal groups by marking half of them with a "+" and half with a "(-)." Aroma scorecards are collected by a monitor after 20 to 30 minutes.

Next the judges taste all the wines and, again beginning with the indicated wine, will sort the wines into two equal groups of preferred and not preferred wines. Each judge again marks half the wines "+" and half "(-)." General scorecards are collected after 40 to 60 minutes.

Calculations, statistics, judges

The range of the MAX-Preference score is (-1) to +1. The score is calculated by giving each score a number value of one or minus-one. Each "+" the judges assign becomes +1 and each (-) becomes (-1). For each wine, the converted scores are added together. This gross sum is then divided by the number of judges to obtain the normalized score for each wine. For example, with six judges assigning two "+" and four "(-)," the composite score is (-0.33).

Statistical significance of the correlation between MAX-Preference scores for aroma and taste with chemistry, such as tannins or pH, can be checked using Pearson's Correlation Coef-

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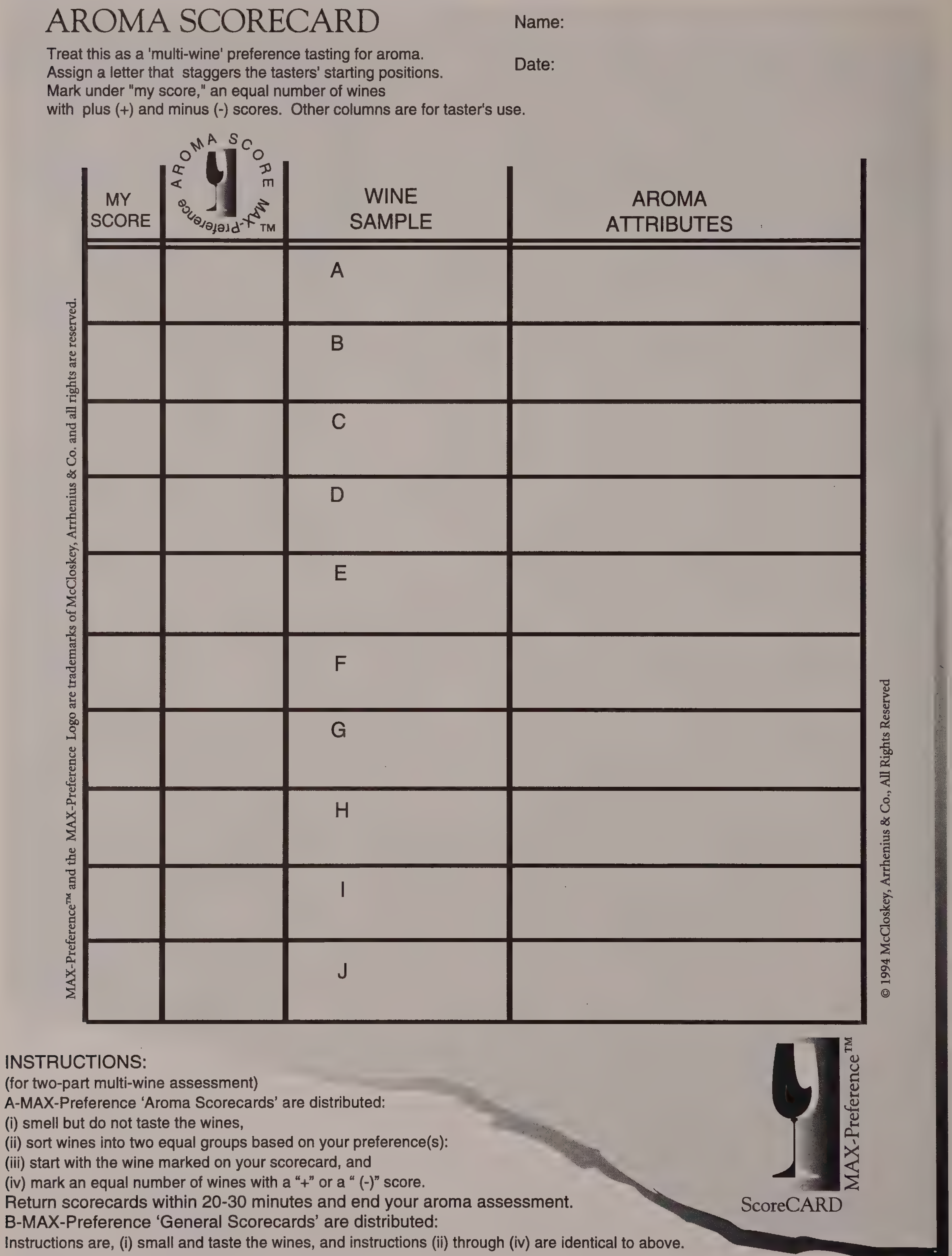
Figure I – Multi-Wine Preference Scorecard



AROMA SCORECARD

Name:

Date:

Treat this as a 'multi-wine' preference tasting for aroma.
Assign a letter that staggers the tasters' starting positions.
Mark under "my score," an equal number of wines
with plus (+) and minus (-) scores. Other columns are for taster's use.

MY SCORE	AROMA SCORE MAX-Preference™	WINE SAMPLE	AROMA ATTRIBUTES
		A	
		B	
		C	
		D	
		E	
		F	
		G	
		H	
		I	
		J	

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INSTRUCTIONS:
(for two-part multi-wine assessment)
A-MAX-Preference 'Aroma Scorecards' are distributed:
(i) smell but do not taste the wines,
(ii) sort wines into two equal groups based on your preference(s):
(iii) start with the wine marked on your scorecard, and
(iv) mark an equal number of wines with a "+" or a " (-)" score.
Return scorecards within 20-30 minutes and end your aroma assessment.
B-MAX-Preference 'General Scorecards' are distributed:
Instructions are, (i) small and taste the wines, and instructions (ii) through (iv) are identical to above.

MAX-Preference™
ScoreCARD

ficient and Signficance Tables in *Wines, Their Sensory Evaluation*, by Amerine and Roessler.[2]

For the method to produce statistically significant results, each judge's reliability is important. Experienced judges may be selected by informal interview regarding working experience or by using a pre-test. Any panel of judges includes individuals with more or less experience, sensitivity, or consistency. On a given day, even the best judge may be hampered by a cold, for example. The consistency of scoring for a single judge to the group can be measured with the use of a similarity index (such as the Spearman index), and when one judge's scores are inconsistent with the group's, for whatever reason, his or her scores may be disregarded (*e.g.*, Spearman Rho<0.40 for n=15), particularly if the pre-test shows a lack of experience.

Winery production groups may use this method with as few as five judges, but a panel of nine or more judges is recommended for statistically significant results.

Conclusion

The multi-wine preference method fulfills a great need in the wine industry for a fast, low-cost way to assess wine quality as determined by industry professionals. As with any methodology that attempts to measure quality, MAX-Preference scores are relatively specific to a given group of judges and wines. To compare scores to another group requires a series of related tastings and further statistical analyses. In this regard, MAX-Preference scores for winemakers and consumers are not the same.

Because the scores significantly correlate with chemical analyses — such as pH, potassium, and TA — we can use them to identify the chemistry judges may associate with quality wines. Furthermore, we can use the chemistry of new wines to forecast what their scores will be, provided they are tasted by wine industry professionals. We expect this intuitively sensible method to be important to the wine industry. ■

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Culinary adventures with Viognier

by Eleanor & Ray Heald

A recent varietal newcomer, particularly in the United States, Viognier is providing culinary challenges and a few adventures to chefs. Viognier's style variations are a recent discovery to chef Michelle Anna Jordan, who shared her ideas with **PWV** about pairing Viognier with an array of foods and unique spices.

Jordan has lived, cooked, and written in Sonoma County for more than 20 years and is author of *A Cook's Tour of Sonoma*, and *The Good Cook's Books* published by Addison-Wesley. In addition, she is food and wine editor for *The Sonoma County Independent*, an alternative weekly newspaper.

Unlike many wine and food reports published by **PWV**, this one does not represent one idea-gathering meeting with Jordan. The report evolved over several months as she tasted through the wines discussed in the Viognier varietal review (see page 36).

Jordan first focused on compatible flavors, and she created recipes for Viognier centered around seafoods: lobster, rock shrimp, and scallops. For vegetables, she chose carrots and beets. Fruit preferences were apples and apricots.

In the spice spectrum, she liked ginger, candied ginger, cardamom, lemon grass, and toasted cumin. She also envisioned recipes with honey. As time passed, more evolutionary considerations included the wine's distinctive floral character, along with citrus, sugar, and spice.

Fine-tuning flavors

The acidity in Viognier added dimension to Jordan's early flavor considerations. "Unlike Chardonnay, which can overpower foods with a wallop of oak and a fatty character, Viognier offers a brightness, a flash of acidity, a surprise of sweetness with a subtext of tropical flavors playing against each other," Jordan notes.

She particularly likes the combination of tropical flavors enhanced by the bright acidity of Viognier. In some of the wines, a slight floral quality with the suggestion of ginger combined with a hint of vanilla was discovered. In matching foods with these wine characteristics, she likes to include an element of surprise, a bright hint of flavor in a context where it is untraditionally expected.

"Most people don't think of vanilla as tropical, but in fact, the vanilla bean is from a tropical orchid," Jordan says. "It is a flavor that I like to incorporate into certain savory dishes." Considering vanilla's traditional use in desserts, she points out that a hint of vanilla is accented by sweetness, and this theme plays a major part in fine-tuning recipe pairings with Viognier.

"The flesh of chicken, quail, and duck are perfumed in a very enticing way by vanilla," Jordan maintains. This element is combined with a little sweetness from currants and a bit of tartness, generally from a medium-acid vinegar, for example. Though she finds these pairings do not work with leaner Viognier styles, the wines with fuller and rounder finish work well in this context.

Focus on acidity

Choosing ingredients that work well with the acidity in Viognier is important. "I like to cook with vinegar as a primary ingredient in dishes other than salads, but it must be done carefully," Jordan instructs. "Too much or too strong a vinegar eclipses Viognier, as it does any wine."

Viognier works well with several vinegar-based dishes, such as Golden Beet Borscht, a recipe from *The Good Cook's Book of Oil & Vinegar*. "The yogurt in this soup mitigates the acid in the vinegar, softening its effect without coating the tongue with fat. This allows the brightness of apple cider vinegar and the delicate sweetness of the beets to interact with similar elements in a Viognier," Jordan says. "The taste remains bright."

Jordan seeks out sharp, clear, bright tastes and textures, avoiding denser ingredients such as cream or butter sauces and most, but not all, starches. "I would not serve Viognier with creamy polenta, for example, or with a cassoulet or most pasta dishes," she emphasizes. "I would use only dried pasta, not fresh, with a delicate citrus-based sauce; no cream or tomatoes."

She also looks for purées of heartier winter vegetables, such as sweet potatoes and winter squashes. Viognier works well with fennel braised with olive oil and lemon. Radicchio braised with olive oil and vinegar works also. "But if I were to serve a chevre with braised radicchio, which I often do, I would choose a Sauvignon Blanc instead," she explains.

Jordan cites other examples of how Viognier's acidity joins well with certain acidic foods. Large prawns can be sautéed or grilled, basting them with a vinaigrette of honey, olive oil, balsamic vinegar, sherry vinegar, a hint of vanilla extract, garlic, and black pepper, just before they come off the grill. Serve the prepared prawns with sliced fresh strawberries and shaved fennel.

"This is a complex dish that may sound unusual, but it works on the palate," she explains. "The fennel is aromatic and full of subtle perfume. The strawberry aroma is much less subtle. These two elements are tied together by the vinaigrette and completed by the prawns. Accent from a bright Viognier allows the dish's various elements to play themselves out without interference from the wine. Nothing about Viognier overwhelms this dish. All of its subtle elements remain vivid."

Sweet surprises

"In Viognier, sweetness generally comes as a surprise," Jordan reveals. "It's not a sweet wine, yet there are flashes of flavor that I can describe in part by calling them sweet."

These "sweet" elements are generally

combined with tropical accents, which may be subtle or intense, depending on the specific wine. They also work in concert with citrus, lemon, and an occasional hint of grapefruit.

The interplay of suggested sweetness and tropical flavors of Viognier may be enhanced by including tropical fruits, such as mango and papaya in dishes. Jordan showcases this combination in a simple entree of poached or grilled salmon with a mango salsa. However, she cautions against smoky, overwhelming grilled flavors.

"I believe strongly that salsas must have acid, and in the case of the mango salsa, I choose a low-acid rice wine vinegar and round it out with a bit of fresh lime juice," she offers.

Additionally, the sweet, floral character of the fruit itself and a bit of heat from a serrano chile combine to make an interesting contrast with the sweet flesh of the salmon. "The bright, tropical elements in the dish resonate beautifully with their counterparts in a Viognier," Jordan concludes. ■

Jordan suggests the following recipe to illustrate how the flavors of lemon grass and fresh ginger contribute an intriguing element to a summertime soup accompanied by Viognier.

Tomato & Corn Chowder with Fresh Ginger, Lemon Grass & Salmon

Serves 6

Ingredients:

4 tablespoons pure olive oil
1 yellow onion, peeled and diced
3 garlic cloves, minced
1 serrano pepper, stem removed and finely minced
2-inch piece of ginger, peeled, chopped, and squeezed through garlic press
1 quart hot fish stock
2 stalks lemon grass, bruised and cut into one-inch pieces
juice of one lime
½ cup Viognier
2 medium tomatoes, peeled, seeded, and diced
1 cup fresh corn kernels
1 lb salmon filet, skinned and cut in one-inch cubes
¾ cup heavy cream or coconut milk
¼ cup cilantro leaves
kosher salt and black pepper in a mill

Preparation:

Heat the olive oil in a heavy pot and sauté onions over medium heat until they are transparent and fragrant, about 15 minutes. Add garlic and sauté another two minutes. Add minced pepper and ginger. Stir mixture and pour in hot fish stock.

Add lemon grass, lower heat, cover pot, and simmer 15 minutes. Remove and discard lemon grass.

Add corn and salmon. Let the soup simmer very gently over low heat for five minutes. Stir in cream and cilantro; add a generous pinch of salt and several turns of black pepper.

Taste, adjust seasoning, and ladle into warmed soup bowls. Serve immediately.

(Recipe is from Jordan's new book, *The Good Cook's Book of Tomatoes*, Addison Wesley, 1995, $15.)

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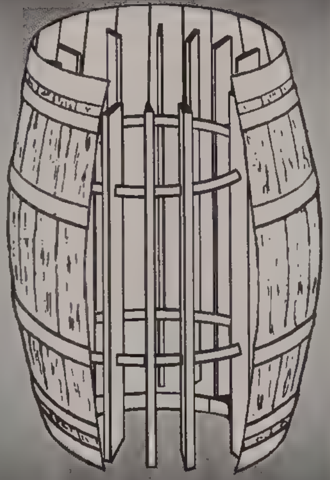

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Viognier

by Eleanor & Ray Heald

While some may think that Rhone Valley Condrieu producers have a "model" for their Viognier production, this is not true. Reading this report, you will learn that one Condrieu producer barrel ferments complemented with full malolactic fermentation (MLF) and the other tank ferments and does not do MLF. There is no French model.

The French are experimenting as much as American producers. Viognier is a grape on a mission and perhaps a grape with an attitude, challenging winemakers to discover its nuances.

Craig Williams (Joseph Phelps Vineyards [St. Helena, CA] winemaker) outlined the principal challenges: "Flavor development comes at higher must/sugar levels compared to standards for other white varietals," he notes. "This appears to be the case in cooler climates as well as warm, and bordering on hot climates. The question remains, can we mature Viognier at lower sugar levels?

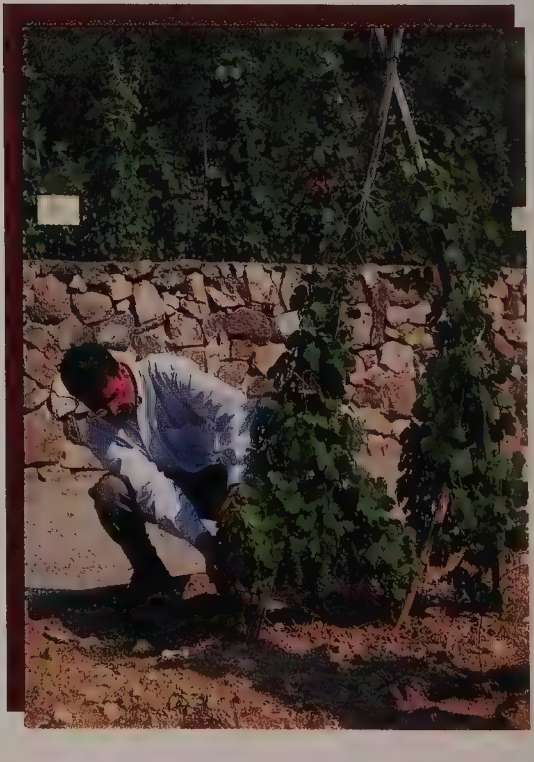
"Ripening at higher sugar levels may not be a problem, but no one knows for sure since insufficient quantities of Viognier have yet hit the market to 'test' what negative qualities may exit. So far, demand has been good," continues Williams.

"As Viognier approaches higher sugar levels, around 24° Brix, there is a big increase in skin phenolics and acidity drops off rapidly," observes Kevin Hamel, winemaker at Preston Vineyards (Healdsburg, CA). "However, when fruit is picked at elevated sugars, where exotic flavors develop, ageability may drop off."

Global perspective

Ten years ago, little Viognier was planted in France. In the northern Rhone, Condrieu and Chateau Grillet are small appellations with slightly more than 100 acres of Viognier total. There are only minor plantings in the Loire Valley. In 1995 however, there are about 300 acres of Viognier in the Languedoc-Roussillon region of southern France with more plantings planned. These wines are varietally named, much as they are in the U.S. and generally carry the designation Vin de Pays d'Oc. A report from the area's leading producer Skalli-Fortant de France is included below.

Not much is different in the U.S. In 1984, there were no bearing Viognier vines in California. Today, there are just under 300 acres with a domestic total



Vineyard challenges

about 350 acres. Virginia has a total of 32 acres and is second to California, but Horton Vineyards is the only commercial Viognier producer in the state. Horton, like many California wineries chooses Viognier to round out a Rhone varietal series.

What do other industry Viognier advocates have to say about the challenges of Viognier in both the vineyard and the cellar?

Setting crop

Viognier has been maligned as a varietal with crop setting difficulty. So far, this has not been the case at Sobon Estate in Plymouth, CA. Owner/winemaker Leon Sobon thins at least twice and harvests between 3-4 tons/acre (TPA). "In 1994, we thinned by over 50% and still came in at 3.6 TPA," reports Villa Helena Winery (St. Helena, CA) owner/winemaker Don McGrath.

Horton Vineyards in Virginia significantly thinned the 1993 and 1994 crops according to Alan LeBlanc-Kinne, consulting winemaker. About 30% of the crop was thinned in 1994 to achieve 4.5 tons/acre, after an extremely harsh winter with vineyard temperatures as low as -6°F. Viognier had the highest rate (90%) of live buds of any vinifera in the vineyard.

Hamel reports that the 1992 Preston crop was thinned once to yield 3.5TPA, but no thinning was done in 1991 or 1993 and yield was about two TPA. "In 1994, conditions were variable with heavy crop on some vines and sparse on others in the same vineyard block," Hamel says. "And we have the so-called cleaned-up clonal selection."

Dwayne Helmuth, winemaker at Callaway Vineyard & Winery in Temecula, CA, reports a similar yield and variable crop load. The vines are budded to over 25-year-old Sauvignon Blanc that yielded the third Viognier crop in 1994.

**Photo left: Dominique Lallier of Delas Fréres demonstrates traditional trellising for Viognier used in northern Rhone Valley of France.
Photo by Ray Heald**

Williams says that with the exception of 1991, yields average 2-2.5 TPA at Joseph Phelps Vineyards. Viognier was planted at different times in three locations: St. Helena, where vines are seven to eight-years-old; Yountville vines are 5-years-old, and Carneros plantings are 6-years-old. "Location, at least for Phelps, does not seem to be an issue when discussing low yields," Williams maintains.

This thought was questioned by Sobon, who believes that soil composition plays a role in crop set and ultimate yield. He suggests that Viognier's vine vigor is sensitive to rootstock.

"Another problem at Phelps with Viognier has been that vines tend to set fruit higher up on the cane than other varieties such as Chardonnay and Cabernet Sauvignon," Williams continues. "Buds higher up on the cane are less fertile and therefore do not set a correct, morphological bunch. We also experience sterile shoots."

"We don't see that at all," Sobon says. "However, Viognier is similar to Zinfandel with its uneven ripening. As far as clones go, I'm not sure that it has been proven that there are different clones of Viognier. There are different sources, but the clonal issue has not been solved."

Ripeness

Winemaker Scott Harvey of Renwood Winery in Plymouth, CA, speaks to ripeness of Viognier. "There's a dramatic color change from green to yellow and you say to yourself, Zinfandel's already in, Viognier's got to be ripe," he says. "So you pick it and get it in the tank to discover that flavors are not there. You end up stung the first time, but the second time you let it get ripe and naturally — it makes a big wine."

Viognier trellised on a divided canopy seems to achieve very even ripeness at Horton Vineyards. Leaf pulling is done to further expose the fruit to sunlight and leads to more fruitful buds the following year.

Mike Berthoud (assistant winemaker at Arrowood Winery in Glen Ellen, CA) maintains that if bunches are not ripe there can be as much as an 8° Brix differential between ripe and unripe berries on the same bunch. "This dramatically affects flavors and acidity," he points out. "When you let Viognier get ripe, you also find out that half of it has been eaten by birds. We roll the dice each day and wait to get 24° Brix to make the most flavorful wine."

Winemakers agree that lab numbers mean little with Viognier. The grapes must be tasted to judge ripeness.

Even though it's necessary to wait and harvest Viognier at 24° to 24.5° Brix, winemakers, in general, agree that pH does not rise and remains steady around 3.3 between 22° and 24.5° Brix.

McGrath and Sobon, who report higher yields, also speak to uneven ripeness and differently-sized berries in a bunch. "In 1990-92, we had even ripening and very tight bunches," says McGrath. "The bunches almost looked like they were going to explode. However, in 1993, ripening was uneven and so was berry size."

"Literature suggests that the variety is highly variable," Helmuth comments. "I believe we're so inexperienced, we don't know what to expect and are using inconsistency as Viognier's middle name, but the grape is really following its genetic design. We need time to discover this and learn to deal with it effectively."

Fruit handling

Hamel suggests that there are specific phenolic considerations when fruit reaches 24° Brix and slightly higher. At Preston, there is no skin contact nor whole cluster pressing, but Hamel says whole cluster pressing may be an advantage.

At Arrowood Winery, Berthoud has crushed and pressed directly with cool, morning-harvested fruit successfully and sees no great advantage to whole cluster pressing.

At Joseph Phelps, grapes are crushed and pressed directly. First bottlings of Phelps Viognier had skin contact, but the practice has been abandoned due to the wine's delicate nature. "Today, we prefer to handle the wine less and don't want to add something that we have to remove later," says Williams.

Harvey believes that light pressing is essential. He suggests inflating the bladder and pressing only to 1-bar, but taking a longer time to reach that pressure. Additionally, he cautions against tumbling too many times.

Horton Vineyards presses chilled grapes extremely quickly, taking press fractions based on pH rise.

Hamel points out that Viognier is a lower juice-yielding variety. Among producers interviewed, juice yields range from 125 gal/ton at Renwood to 185 gal/ton for Delas Fréres Condrieu.

Yeast choices

Williams contends that a variety of yeasts offer aroma and flavor production, compatibility with MLF bacteria and healthy fermentation. "In 1994, we used a mixture of Burgundy yeasts as we did in 1993," he says. "We use very little Prise de Mousse (PDM) because it makes the wine taste everyday and not too exciting. I know that down the road, it doesn't really matter that much, but I've gotten away from it. I believe Montrachet might work also."

At Arrowood Winery, VL-1 yeast is used to capture the honeysuckle character and ultra-floral aromas with delicate flavors. The wine is a blend of half barrel-fermentation, and half tank fermentation.

Malolactic fermentation/lees ageing

About 75% MLF is done at Phelps, mainly for a creamy texture and some extra flavor. "We've been fortunate not to get a buttery character with MLF like we get with Chardonnay," Williams says. "Buttery character does not fit well with Viognier flavors.

The Phelps regime is 75% barrel fermentation with MLF and the balance stainless fermented, non-MLF. The two fractions blended together offer fruity and spicy characteristics with a good texture. This method requires paying attention to pH and acid levels, but it yields a balanced wine. Inoculation for MLF with MCW is done in barrel near the end of fermentation, close to 0° Brix. Total time on gross lees, stirred every two weeks, is about five months.

To reduce acidity, 100% MLF is done at Arrowood. Must is inoculated with MCW concurrently with the start of primary fermentation at about 21° to 22° Brix. "I'm opposed to new oak," Berthoud says. "In the main, we use older barrels and don't do extended lees ageing. The two lots are blended and then returned to barrel for ageing."

When questioned about the method not allowing time for spent yeast to pick up excess diacetyl character, Berthoud responds with, "we don't get that. Because Chardonnay develops this character is not a reason to conclude that Viognier will. People who don't understand this, question MLF and Viognier."

Longevity

Agreement indicates that Viognier, in most vintages, is a wine to be drunk young, between release and two years in the bottle. Sobon doesn't buy this concept totally. "I think we don't have sufficient experience drinking old Viognier," he contends.

"Longevity has nothing to do with whether Viognier is an excellent wine or not," Williams concludes. "Sometimes, I think we make too much of the longevity issue. Longevity seems relevant to the variety and with Viognier, (allowing for a few exceptions), the wine seems to show best when young rather than old.

The following French and domestic producers shared their vineyard considerations and production techniques with ***PWV***:

Arrowood Winery

Glen Ellen, CA

❦

Richard Arrowood, winemaster
Mike Berthoud, winemaker

Style

Highlighting Viognier's honeysuckle, orange, floral, muscat and pear aroma characteristics are important. On the palate, floral characteristics are complexed with hints of cloves, mint, and honey. Designing a viscous wine with these elements is also paramount.

Vineyards

Grapes come from Saralee's Vineyard in the Russian River district of Sonoma County. "UCD-certified Viognier clone #1 vines grafted onto 5C rootstock have shown vigorous growth and good yield since planting in 1989," reports Rich Kunde, vineyard owner. Yields were 2.8 tons/acre in 1992, 4.4 tons/acre in 1993, and 7.5 tons/acre in 1994.

"The biggest challenge is in attaining even ripening," says Kunde. "Within the same vine, most clusters fully mature with tremendous fruit characteristics, while some clusters are slower to ripen, retaining a green characteristic in appearance and taste.

"We go through the vineyard at least three times prior to harvest, to selectively remove the undesirable clusters. Even if we greatly thin the crop early in the season, we still get uneven ripening. Selective thinning before harvest, and selective picking is how we handle the problem. Pickers are instructed to harvest only clusters that are golden in color. Non-ripe clusters are grass-green. Color change can occur within as little as two days.

"To enhance color change, we begin removing leaves right after bloom and as needed throughout the season (more leaves are removed on the east side [morning sun side]). During harvest, a small amount of clusters with Botrytis strikes are left on the vine. These are harvested later for a late harvest Viognier program.

"Our Viognier vines have shown excellent yield, contrary to some reports of Viognier low vigor and yield. We think there are two distinct selections of Viognier in the U.S. The vigorous, productive, virus-free UCD clone and the diseased 'Samsonite Express' low vigor, low production selection."

The Viognier is spaced 8x12 in rich Yolo loam soil and trained on a 4-foot wide U-trellis with bilateral cordons. "The wide spacing and wide elaborate trellis system were chosen because of the vigorous soil. Our Viognier could produce over 12 tons/acre if we did not thin."

Winemaking

Juice is settled two days at 40°F prior to inoculation with VL-1 ADY. Fermentation is started in tank. Half is transferred to two-year-old center of France cooperage for barrel fermentation.

At 12°Brix, both tank and barrel-fermented fractions are inoculated with MCW. Once MLF completes, wine is racked out of barrel and tanks. A blend of the two fractions is made and returned to barrel for five months.

The first SO_2 addition is made at the end of MLF and in barrel is maintained at 28ppm free. The wine is racked once before bottling. Bentonite is used as a fining agent and there is a coarse D.E. filtration before bottling in April.

Calera Wine Company

Hollister, CA
❦
Sara Steiner, winemaker

Style

Peach, melon, and honeysuckle aromas are desired with spicy, herbal complements. Calera Viognier is intensely fruity, with floral flavors and a toasty quality reminiscent of new oak; creamy and rich on the palate. The wine shows tremendous fruit potential yet is well structured and complex.

Vineyards

The vines on Mt. Harlan in San Benito County, 23 miles east of Monterey at 2,200 ft. elevation, are predominantly own-rooted in soil rich in limestone and cordon-trained with catch wires. Two acres were planted in 1983 with New York Experimental Station stock. Three more acres were planted in 1989.

The biggest focus in Viognier vineyard management concerns water and fertilizer applications and timing, to insure quality and predictable yields (currently at three tons/acre).

Winemaking

Grapes are hand-harvested very ripe for full flavor development, averaging 25.5° Brix. Whole clusters are pressed without stemming, crushing, or pumping. After 24 hours of juice settling, the juice is racked (30% to stainless steel and 70% to older barrels) and nutrients added. Calera allows native yeast fermentation and MLF is inoculated.

All lots are aged on lees in 10-year-old French oak barrels. The lees are stirred weekly until fermentations are completed and SO_2 is added.

Once the wines have settled, barrels are racked together and the wine heat-stabilized with bentonite addition. After settling, minimal filtration is used for visual clarity only with loose pads prior to bottling in early spring.

Callaway Vineyard & Winery

Temecula, CA
❦
Dwayne Helmuth, winemaker

Style

Delicate, floral, and citrus aromas and apricot, peach-like flavors with a soft, smooth finish are the principal goals. Because Viognier tastes like several grapes in one, it is different from any other varietal. Showcasing this difference is a distinct aim.

Vineyards

In 1992, Viognier buds were grafted onto 25-year-old Sauvignon Blanc vines in an irrigated, deep, well-drained Temecula vineyard with rolling terrain. Using a Geneva Double Curtain trellis and two-bud spurs, the vines yielded 3.3 tons/acre in 1993 and 3.0 tons/acre in 1994.

"With only two vintages harvested, we have not experienced uneven ripening, and for the most part, are still learning how to grow it ourselves," says Craig Weaver, vineyard manager.

Winemaking

Grapes were harvested at 24-24.5° Brix in 1994. In 1993, grapes were picked at 23.0° Brix to produce a more delicate style.

Juice is settled four hours at 50°F before inoculation with Prise de Mousse ADY. If needed, DAP is used as a yeast nutrient. Wine is totally tank-fermented. Fermentation lasts 45 days at 44°F and does not undergo MLF. The long, cold fermentation enhances the floral Riesling-like and peach aromas found in the finished wine.

After fermentation completes, wine is aged 2 to 2.5 weeks on light lees. Bentonite and PVPP are used to aid protein stability and color brightness before bottling in early spring.

M. Chapoutier, S.A

Tain L'Hermitage, Drome, France
❦
Michel Chapoutier, winemaker

Style

Pineapple, peach, and apricot aromas are enhanced by pineapple and tropical fruit flavors.

Vineyards

Vines averaging 25 to 45-years-old are grown in five different locations, all with granite and alluvial soils, in appellation Condrieu. Goblet pruning yields 25 to 30 hL/ha (1.6 to 2TPA). Grapes are harvested when the potential alcohol is greater than 13°.

Winemaking

Whole clusters are pressed, with 1 to 5g/hL (30 to 50ppm) SO_2 addition. Juice is cold-settled for 24 hours before transfer of ⅓ to oak and the balance fermented in tank at about 25°C with wild yeast. Chapoutier believes that MLF is necessary for stability, ageability, richness, longer finish, and all around better match of wine with food.

Because no advantage is gained, wine does not age on the lees and is racked as many as four times. After five to eight months in barrel, where free SO_2 levels are maintained at 15 to 20ppm, this fraction is blended with the tank portion.

Bentonite is used as a fining agent. In April or May, a 1μ or 2μ membrane precedes the filler on the bottling line.

Delas Fréres

St-Jean-de-Muzols, Tournon, France
❦
Dominique Lallier, enologist/director

Style

Peach, tropical fruit, and honey aromas and flavors are desired. These characteristics cannot be found in any other French wine and Viognier is therefore considered atypical. The wine taste like ripe Viognier grapes with freshness, density, and a long finish.

Vineyards

Located in appellation Condrieu, vines averaging 35-years-old and yielding two tons/acre are Goblet-pruned and trained on a 1.5m-high trellis that is teepee shaped.

Winemaking

Grapes are picked when potential alcohol measures 13° to 13.5°. Whole clusters are pressed with the addition of 50ppm SO_2. To ensure a high percentage of solids preserving aromas, juice is settled only 2-3 hours before inoculation with regional ADY.

Wine is tank-fermented and does not undergo MLF. Ageing in tank on fine lees, stirred monthly, continues for eight months to add body, density, and support aromas.

Because the wine is susceptible to oxidation, it is believed that wood ageing decreases fruit character and makes a heavy wine.

After fining with bentonite and/or

casein, wine is racked in a month and 50ppm SO_2 added. A coarse filtration follows with sterile filtration at bottling at the end of June.

Edmunds St. John

Emeryville, CA

❦

Steve Edmunds, winemaker

Style

Desired aromas and flavors include lime blossom, marzipan, and almond. If ripe fruit is harvested, beautiful aromatics are able to withstand a weighty structure.

Vineyards

Vines planted in 1989 are located in Knights Valley. Because yields on vertical shoot-positioned vines have been so variable, Edmunds declines to offer TPA. "Viognier at this site wants to produce; without any thinning, I believe the vines will hang 7-8 TPA. But the wine would be worthless. I think shoot-thinning and cluster thinning are mandatory. The yield needs to be three tons/acre or less if you want good wine."

Winemaking

Whole clusters are pressed because "Viognier phenolics can be a little fearsome." After barreling the juice, inoculation with Epernay ADY is made. If H_2S develops, yeast nutrient is added as needed.

Fermentation completes in 12 to 15 days in 120 to 132-gal French oak barrels averaging six to 8-years-old. Spontaneous MLF completes in barrel. Edmunds contends that he doesn't think the wine tastes right without MLF. Once MLF completes, a 30ppm free SO_2 addition is made and wine remains on gross lees through fining. In barrel, free SO_2 levels are maintained at 25-30ppm.

Non-fat milk, bentonite, gelatin and kieselsol are all possible fining agents. The only racking of the wine is done 3-5 weeks after addition of a fining agent. Wine is bottled as soon after fining as possible without further clarification.

Fortant de France

Séte, France

❦

Philippe Tolleret, director

Style

Dried apricots, a melange of dried fruits, banana and verbena are typical aromas. Apricot flavors are in evidence on the palate.

Viognier juice pressed from ripe grapes gives the flavors to the final wine. Tolleret considers Viognier an "easy" grape without any problems and one that assures consistency from year to year.

Vineyards

Clonal selection 642 provides about 30-40% of the bottled wine and the remainder is mass selection sourced from multiple growers in the Hérault and Aude departments of the Languedoc region in France where it grows only on limestone terraces as well as clay and gravel slopes. Vines average 5 to 6-years-old on a three-wire trellis and yield about 2.7TPA. Tolleret contends that Viognier loses its varietal character if allowed to overproduce.

Winemaking

Skin contact of 4-6 hours is used for a large part of the bottled wine. To avoid harsh stem tannins, the remaining grapes are pressed whole cluster. Juice is settled for three days at 46°F before inoculation with CHP Bayanus ADY. As yeast nutrients, both DAP and Vitamin B-1 are used. After ⅓ sugar conversion, transfer to a mix of French cooperage averaging 1-2 years old is made.

Fermentation completes in barrel in 5-7 days and a 30ppm free SO_2 addition is made. The wine does not undergo MLF, although considerations are being given to a small percent MLF in the future.

To add body and protect against oxidation, wine remains four months on light lees that are stirred every 15 days for two months, then monthly thereafter. No additional SO_2 is added and the wine is racked only once at the end of the 5-month barrel regime and transferred to tank for bentonite-fining.

There is further clarification with D.E. and there is a 0.65µ membrane ahead of the filler when the wine is bottled in early April.

Grande River Vineyards

Palisade, CO

❦

Stephen Smith, winemaker

Style

Fresh aromas and lush tropical fruit from cold fermentation to soften the naturally high acidity with partial to 100% malolactic fermentation. Extended ageing on yeast lees with minimum oak extraction. Floral, citrus fruit, balanced, crisp with complexity from oak and good acidic finish.

Vineyards

In 1989, the winery's estate Mount Lincoln Vineyard was planted with dormant Viognier cuttings obtained from Calera, LaJota, and Ritchie Creek Vineyards in California on their own roots in western Colorado's desert climate.

Multiple-trunk vines, spaced 4x9, trained on a bilateral cordon with a vertical canopy supported by two movable catch wires are mechanically harvested. The first vintage in 1992 yielded 1.94 tons/acre; 1993 bore 3.61 tons/acre, and in 1994 4.41 tons/acre were harvested.

"Viognier is performing well in western Colorado's high desert climate," reports Smith, "and we have not seen the viticultural problems often attributed to the variety and continue to see good quality and good yields."

Winemaking

Grapes are destemmed and pressed. Juice is settled for 24 to 48 hours. After racking off the gross lees, juice is inoculated with Rhone isolate L-2056 and fermented cold at 50°F.

After fermentation completed in 1992, the wine was transferred to older French oak on its yeast lees that were stirred occasionally. Some of these barrels were inoculated with MLF bacteria.

In 1993, the Viognier was inoculated for 100% MLF. Because Smith believes that even modest amounts of oak detract from the opulent, tropical fruit present after fermentation, he is pulling back from its use.

The first SO_2 addition was made in December after MLF completion. The wine was fined with bentonite, isinglass and caseinate. There was a rough and polish pad filtration before bottling and an 0.45µ membrane at bottling.

Horton Vineyards

Vineyard: Orange, VA
Winery: Gordonsville, VA

❦

Alan LeBlanc-Kinne, winemaker

Style

Honeydew and cantaloupe melon complemented by honeysuckle and floral elements are the aromatic goals. Additionally, a viscous mouthfeel plus flavors mirroring aromas, and almost red wine-like structure is also desired.

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Vineyards

Vines were planted in 1990, 1992, and 1994 for a total of 20 acres of Viognier. Additional acreage will be planted in 1996. Vines are trained on a 4-foot open lyre system. Source of the original cuttings was La Jota and Ritchie Creek in California. All vineyards are drip-irrigated. Production is 3.5-5 tons/acre on older plantings and grapes are hand-harvested.

Winemaking

To minimize phenolic extraction, the grapes are chilled before whole cluster pressing. Juice is settled 24 hours (after fining with bentonite) at 40°F before inoculation with VL-1 and D47 ADY.

Fermentation begins in tank and ⅔ of the juice is transferred to barrel at about 20° Brix. Cooperage is a mix of 75% old, neutral French, 15% used American oak and 10% new French. Barrel fermentation completes in about 21 days. Some barrels (no more than 10 to 15%), go through spontaneous MLF. The tank-fermented wine is kept cool (about 55°F) and takes a little longer to ferment. Malolactic is inhibited.

Barrels of Viognier are aged on gross lees and stirred weekly for five months.

First SO_2 addition of 30 mg/l is made at the first and only racking. Barrel-fermented and tank-fermented wines are blended. Isinglass fining is done only if necessary. Before bottling in April, wine is EK pad filtered and membrane filtered on the bottling line.

Joseph Phelps Vineyards

St. Helena, CA

❦

Craig Williams, winemaker

Style

Desired aromas include honeysuckle, peach-apricot, citrus-grapefruit with a slightly floral, muscat quality. An opulent, low acid, layered texture that is fat and oily complements aromatics.

Viognier should have an aroma profile distinct from that of Chenin Blanc, Sauvignon Blanc or Gewurztraminer with an appealing taste and finish. It should be soft and full-bodied with a long, but not crisp or tart finish.

Vineyards

Five to eight-year old vines are planted at three vineyard sites in St. Helena, Yountville, and Carneros. They are cane-pruned on a vertical trellis and yield 2-2.5TPA. Carneros fruit seems to have a broader aroma profile while there is more extract and finish in grapes grown in St. Helena.

Winemaking

Juice from destemmed and pressed fruit is settled 24 hours at 50°F and inoculated with a variety of yeast strains as noted in the introduction. On a small-lot basis, there has also been success with uninoculated lots.

Fermentation is started in tank and ⅔ is transferred to barrel immediately. Cooperage for the 21-day fermentation is five-year-old, 60-gal French barrels, inoculated post-fermentation with MCW. The wine ages on gross lees, stirred every two weeks, for 4-5 months.

SO_2 is added at 30ppm post MLF. During the barrel regime, free SO_2 levels are maintained at 30ppm. Fining with isinglass or bentonite is done at blending, prior to bottling. A light pad filtration is done before bottling in April.

Preston Vineyards

Healdsburg, CA

❦

Kevin Hamel, winemaker

Style

Aroma characteristics are balanced (through selective harvesting) between delicate floral aspects and riper, exotic, spicy notes. Spicy, peach-like flavors are in tune with a full-bodied wine with crisp acidity in the finish.

Vineyards

In 1989, an initial 250 French Colombard vines were grafted to the UCD selection of Viognier bud wood to form a "mother block." The balance of five acres of existing Dry Creek Valley vineyard (original roots from 1974) were grafted over in 1990.

The deep, sandy and extremely well-drained soil is drip-irrigated. Vines are spaced 8x12 with a conventional 24-inch crossarm trellis. Despite St. George rootstock in sandy soil, vine vigor is moderate to low.

The first experience with fruit on the "mother vines" in 1990 showed Viognier's tendency toward a "hen-and-chickens" or large and small berry type of shatter, and a very low yield. Pruning trials were established in the 1990 planting with different suckering levels on cordon and cane pruning. The most consistent and manageable results came with 16 to 18 two-bud spurs per cordon-trained vine, suckered to two shoots per spur.

"The crop level can be deceiving during the growing season with large bunch counts of apparently well-filled out, conical-shaped bunches," says John Clendenen, vineyard manager. "The bunches, however, are light, weighing around ¼-lb each."

Thinning has been done on very heavy vines to even out ripening. Yields have ranged from 3.6 tons/acre in 1993 to 2.2 tons/acre in 1994. "In this vineyard's condition, about four tons/acre would be a consistent upper limit," adds Clendenen. "Harvest dates have been very early, usually a week or so earlier than anything else on the property.

"Early on, we observed that the most interesting color and flavors came with good light exposure. We remove leaves, with that in mind, trying to give dappled light on all fruit, although some inner fruit can have a green character at harvest. With this kind of leaf removal, care has to be taken in sulfuring in hot weather.

"Future plantings in these conditions would be best on closer spacing with a vertical trellis to give good fruit exposure and a potential for greater yields, while the crop per vine remains fairly low," concludes Clendenen.

Winemaking

Pressed juice from destemmed grapes is settled 72 hours before inoculation in tank with ⅔ ICV D47 and ⅓ with Epernay II ADY. Transfer to barrel is made in 24 hours.

Two thirds of the wine was fermented in older, 5-6 year-old barrels, and ⅓ in tank. Tank fermentation completes in 2.5 weeks and the barrel fraction takes five days.

SO_2 addition of 25ppm is made after fermentation completes. No further additions are made. The barrel fraction remains on gross lees for two months without stirring.

The two components, blended in January, are given a further month of barrel age before bottling in March.

MLF and the use of new oak are avoided.

Pre-bottling, bentonite is used as a fining agent. There is a filtration through polish pads and a nominal 0.5µ cartridge ahead of the filler.

Renwood

Plymouth, CA

❦

Scott Harvey, winemaker

Style

A nose similar to Gewurztraminer and the structure of Pinot Gris with pear-like flavors is desired.

Vineyards

Vineyards in the fourth and fifth leaf are located in the Shenandoah Valley of Amador County. Training is on a two-wire cordon and T-trellis yielding about two TPA.

Winemaking

Pressed juice from destemmed grapes is settled 24 hours at 45°F before inoculation in tank with PDM ADY. After 48 hours, juice is transferred to an average of two-year-old French barrels, none of which are new.

Fermentation completes in two weeks. To contribute to center-palate richness, wine is aged on sweet lees, stirred every two to four weeks, for three months. When the wine starts to fall clear, 10ppm SO_2 is added and another 20ppm SO_2 added at first racking in January.

The wine is fined with bentonite. A course DE filtration is followed by a polish to sterile pad filtration, and a 0.5µ membrane ahead of the filler in February.

Sobon Estate

Plymouth, CA

❦

Leon Sobon, winemaker

Style

Peach, pear, mango, honeysuckle, spice, and toasty aromas are desired. Flavors include fig, melon, peach, vanilla, and toast. The goal is to make a wine as rich and satisfying as a Chardonnay, but with many more interesting flavors.

The wine is blended with 4% Marsanne to add ripe melon notes and with 4% Sauvignon Blanc to heighten tropical fruit components. In 1993, 1% Orange Muscat was also added.

Vineyards

In 1991, 12-year-old Cabernet Sauvignon vines were grafted to Viognier. Quadrilateral cordon is the trellis system.

Thinning is done to achieve 3-4 tons/acre. At 12 inches shoot length, all suckers and shoots (less than about 8-inches long) were removed, leaving no more than two shoots per spur. One bunch was removed from all shoots not growing strongly at about 24-inches shoot length. At veraison, all clusters which were slow in ripening were removed. Approximately 20% of the clusters were removed at each thinning.

Winemaking

Juice from destemmed fruit is settled about 40 hours before inoculation in tank with Cotes de Blanc ADY. Tank fermentation temperature is 55°F.

In seven days, wine is transferred to a mix of French and American oak barrels averaging five-years-old, 20% of which are new. Once fermentation completes in 30 days, wine is inoculated with Viniflora oenos ML bacteria to add a rich, buttery component.

After MLF completes, a 50ppm SO_2 addition is made and wine remains in barrel five months with the free SO_2 maintained at 20-25ppm. Wine is racked every 2-3 months.

Bentonite is used as a fining agent. There is a DE filtration off the bentonite settlings, followed by EK pads the day before bottling, and a sterile membrane at bottling in March.

Villa Helena

St. Helena, CA

❦

Don McGrath, winemaker

Style

Apricots, melon, and peaches with hints of mayflower and honeysuckle aroma are complemented by dry, fruity acidity. Viognier should be rich, full-bodied, fruity with a long finish, and unique refreshing flavor.

Vineyards

In 1989, one row of 16-year-old Chardonnay vines was grafted to Viognier. In 1991, half the vineyard was T-budded to Viognier and in 1992, the balance was T-budded to Viognier. They are cordon-pruned.

Extensive (at least 50%) summer-thinning of the crop is necessary to avoid overcropping and achieve about 3.5 tons/acre yield.

"Viognier likes a lot of heat and sunlight," says McGrath, "so it does best when the canopy is not too thick. This, of course, is what we naturally had a year or two after T-budding. We have had good luck harvesting at about 23 to 23.5° Brix, when the fruit turns color from green to definite yellow. We try to pick when the proper flavors develop.

Winemaking

Whole clusters are not pressed because skin contact of 2-4 hours is preferred. Juice is inoculated in tank with PDM ADY after settling 24-36 hours.

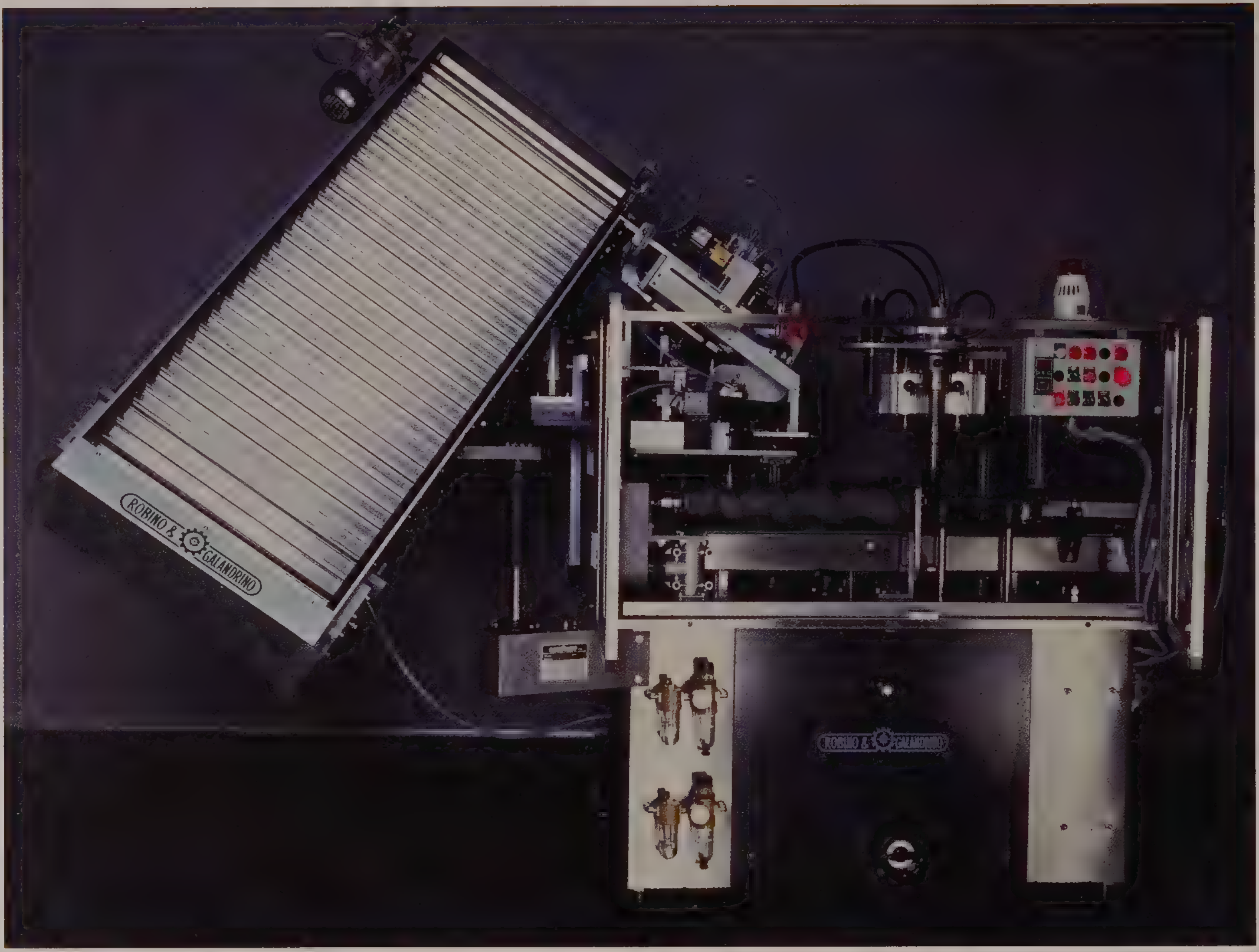
Half of the wine is transferred to Allier barrels, averaging 3-years-old with 10% new for a 10-day fermentation. The other fraction completes fermentation at 60°F in 21 days.

After initial, turbulent fermentation subsides, one barrel out of 16 is inoculated with Viniflora oenos ML strain. First free SO_2 addition of 20ppm is made at dryness for all but the ML-inoculated barrels.

After the wine in stainless completes fermentation, it is also transferred to barrels and all wine is aged on light lees until February.

Wine, racked in February, is given a bentonite, kieselsol and PVPP fining, and filtered through EK pads, then a 0.45µ membrane on the bottling line in May or June. ■

PWV *thanks Joseph Phelps Vineyards for hosting the discussion/tasting and the following California wine industry personnel for participating: Mike Berthoud, Arrowood Winery; Dwayne Helmuth, Callaway Winery; Craig Williams, Joseph Phelps Vineyards; Kevin Hamel, Preston Vineyards; Scott Harvey, Renwood Winery; Leon Sobon, Sobon Estate; Don McGrath, Villa Helena Winery; Steve Hosmer, The Wine Alliance.*



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Are you losing crop to Inflorescence Necrosis?

by Glen L. Creasy,
Oregon State University

Introduction

About this time of year, our thoughts turn to grape bloom and how successful fruit set will be. While the weather ***during*** bloom is an important factor in determining the number of flowers that are pollinated, fertilized, and ultimately become your final crop, there may be something else happening in this early part of the season that affects how much fruit you harvest.

Shortly after bloom, you may notice that a number of flowers fall from the clusters, especially if you tap them over your palm. You can also see that many very small green berries fall off — the shatter stage. These are flowers that weren't properly pollinated and/or fertilized; they fall off because they don't have a viable seed ovary and can't develop into a full-sized berry.

Shot berries also result from lack of fertilization and ovary development. They do not abscise, but eventually develop into small seedless fruits. However, if you see dark, shriveled berries or flowers on the cluster, fruit set may have been affected by "Inflorescence Necrosis" (IN).

Unlike normal shatter, during which berries fall off that are still green, IN causes a browning and death of parts of the flower cluster, occurring between a couple of weeks before bloom up until shatter. In mild cases, few flowers are affected, resulting in small numbers of brown, dead flowers and pedicels scattered among healthy green ones.

As IN gets more severe, sections of the cluster and even the central part of the rachis may brown and die, sometimes all the way back to the shoot!

A characteristic of IN is that the necrotic flowers don't usually fall off, so you can see evidence of it on clusters later in the season. You may also notice that basal clusters tend to show more IN than the upper clusters.[10]

There have been published reports of IN occurring in the Pacific Northwest of the U.S., California,[8] New Zealand, and Australia.[7] Additionally, I have heard of IN-like symptoms occurring in vineyards in New York, southern California, Mexico, northern Chile, and Switzerland. In all of these regions, the vineyards are located in areas where the weather preceding bloom is colder than in areas without IN. IN is more severe in the cooler and higher-altitude sites than in the warmer plain vineyards near Adelaide, Australia.[7]

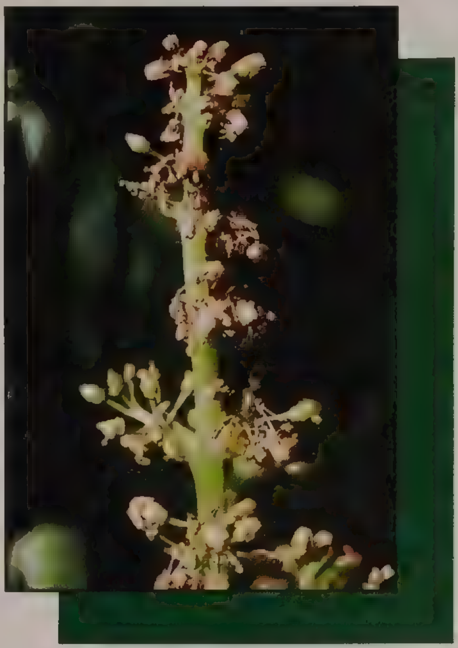
The demand for early market table grapes is pushing plantings into sites with less hospitable spring weather (*e.g.* budbreak is in January and bloom in March in the Coachella Valley, CA), and it is in areas like these that IN may become a more serious problem. It is likely that IN can be found in other, established, grape growing areas of the world, but since it is a relatively newly described problem, few people know what symptoms to look for.

Similarities to other problems

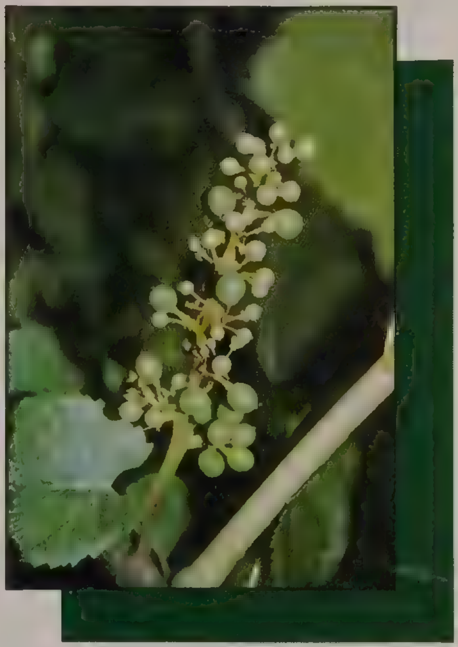
In the past, mild symptoms of IN may have been attributed to "coulure," a term used in Europe to describe poor fruit set in grapes. Symptoms similar to severe IN have also been reported in South Africa,[11] but were attributed to an early season problem called "Growth Arrestment Phenomenon."

Infections of the inflorescence (*e.g.* by botrytis (*Botrytis cinerea*), bacterial blight (*Xanthomonas ampelina*) or rottbrenner (*Pseudopezicula tracheiphila*)) that cause flowers and rachis to dry out, may be confused with IN. However, no pathogens have been isolated from IN-affected tissue,[7,10] and there are usually additional symptoms associated with those disorders that don't occur with IN.

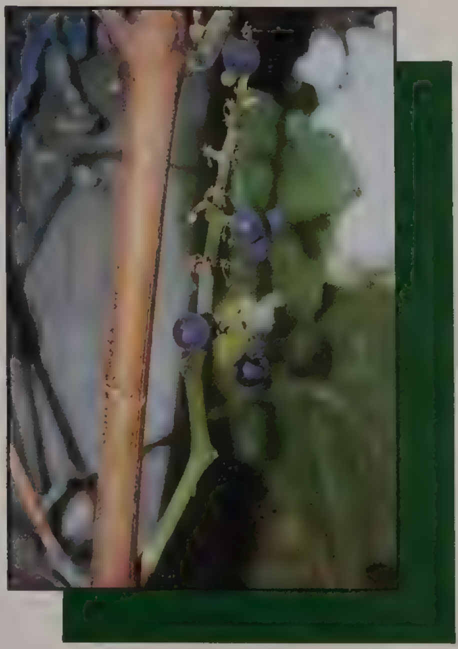
Boron deficiency is known to cause problems with fruit set. It can be distinguished from IN by the following: with severe boron deficiency there are shoot



Pinot noir cluster showing symptoms of severe IN soon after bloom.



Pinot noir cluster with both shot berries and IN.



Pinot noir "cluster" near harvest. Note persistent dead flowers due to IN.

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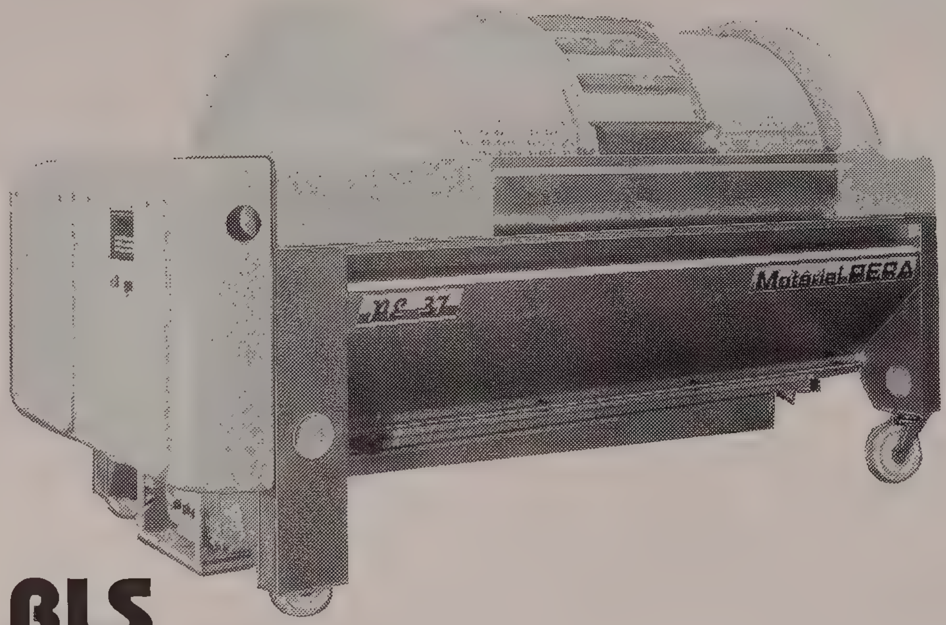

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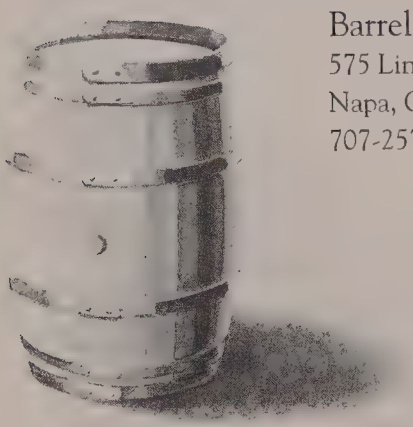

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and leaf symptoms as well as poor set,[12] and under marginal deficiencies there is a tendency for many small seedless berries to develop rather than flowers becoming necrotic.

Waterberry, a more familiar problem, may also have a connection to IN. Because similar parts of the cluster are affected (*i.e.* death of the rachis tissue), it has been suspected that the disorders are related, despite the fact that waterberry occurs around the time of veraison.[7]

What's so important about IN?

Though IN may not appear every year, IN can have a significant economic impact when it is severe. In mild cases, commonly seen in Oregon vineyards), IN is "invisible" to the grower. Yields are unaffected because the vine compensates for the loss in flower-number through increased set of the remaining flowers and/or increased berry size.

In some cases IN can reduce fruit set enough to lessen the tightness of the clusters and reduce the number of possible botrytis infection sites, which is good for both table and wine grapes. When IN is severe however, harvest may find your pickers idle.

IN has completely decimated the crop in small sections of Oregon vineyards, and even over a wider area covering part of the Willamette Valley, a survey showed IN-related crop loss of approximately 50%.[8] Marketable yield for table grapes is also at risk: IN can reduce fruit set to the point that clusters are underweight, or oddly shaped.

When does IN occur?

In order to understand why IN appears when and where it does, we need to know more about it. Unfortunately, there isn't much information available: research into IN's physiology is still in its infancy.

Shade and vigor

We *do* know that IN is associated with excessive vine vigor and shade. If vines are grown under shadecloth (either in the field[5] or greenhouse[4,6,7]), the severity of IN is increased. There is no evidence, however, that shading only the clusters and not the rest of the vine has any effect on IN.[1] Vine vigor may contribute to self-shading if shoot growth is very rapid before bloom, especially in the centers of vines where IN is usually most severe.

High vigor may also result in an imbalance between root and shoot growth, which may restrict the amount of water or nutrients the shoots can get. We know that deep, fertile soils with ready water availability tend to increase vigor, and we have seen that these sites have greater IN severity.

Trellising / Pruning

The type of trellis and pruning method may also affect IN, but so far observations are conflicting and may be complicated by vine vigor. Trellising systems that devigorate vines and improve light interception (*e.g.* Scott Henry) seem to decrease IN, but this research is still ongoing.

Variety

Susceptibility to IN also varies with grape variety. For example, IN is much more common in Pinot noir than in Riesling or Chardonnay.[7,8] IN also varies among Pinot noir on rootstocks and clones of Pinot Noir on own roots,[2,8] but we don't know if this is due to the vigor of the clones or rootstock/scion combinations, or some genetic factor.

Weather

Cool, cloudy, and wet weather prior to fruit set has also been associated with IN.[8] Cold weather affects the metabolism of plants, slowing root and shoot development to differing degrees. Under cloudy conditions, vines may not be getting enough light for optimal growth, further stressing them. However, we don't really know if these factors have a direct effect on the severity of IN.

Other factors

Experimentally, many factors have been found to increase IN: shoot or vine defoliation,[1,6,9] shade,[4,5,6,8,10] severe shoot thinning and tipping,[9] water stress,[6] and ethephon sprays.[6] Each of these treatments or conditions can be thought of as stresses to the vine. A combination of factors may result in enough drain on the vine to cause IN, but what is it about stress that may contribute to IN?

Digging a little deeper

One idea being pursued in Oregon State University's program is that the cause behind IN symptoms is ammonium (NH_4^+). NH_4^+ (the ionic form of ammonia) is an integral part of plant growth. Nitrate, the principal form of N-fertilizer, is taken up by the roots and

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converted into NH_4^+ before being incorporated into proteins. It must be said, at this point, that there is no evidence that nitrogen uptake from the soil (in either NO_3 or NH_4^+ form) has any ***direct*** effect on IN of the clusters.[4,10] But there may be an ***indirect*** effect in that high nitrogen availability increases vine vigor, which *is* associated with IN.

NH_4^+ is of interest because if too much is generated inside the plant (usually in response to stress), it harms many processes essential to cell life.

In affected clusters, NH_4^+ is high,[3,8] much higher than in leaf tissue.[1] Jordan found a positive relationship between a visual rating of IN severity and NH_4^+ concentration in the clusters: when one was high, so was the other.[8] NH_4^+ could also be used to induce IN symptoms in shoot cuttings,[3,4] so there is good evidence that NH_4^+ is causing the necrosis in the flower clusters.

Cells usually deal with harmful substances by sequestering them inside the cell vacuole, which functions like a holding tank. This doesn't work with NH_4^+, which can't be contained. When the NH_4^+ concentration gets too high, cells must incorporate it into other compounds to avoid toxicity and subsequent death. In other words, they must detoxify the NH_4^+ through assimilation: in the case of IN, we don't yet know why NH_4^+ reaches toxic levels only in the clusters. However, research done at Oregon State University has suggested a possible reason.

NH_4^+ may build up in those parts of the flower cluster that don't have enough capacity to assimilate it, eventually reaching concentrations that lead to necrosis. This idea is supported by work showing that rachis tissue doesn't assimilate NH_4^+ as well as other parts of the cluster, such as the flowers.[3,4]

What limits some tissue's ability to assimilate NH_4^+? Is there a lack of enzymes or substrates or both? What is needed for NH_4^+ assimilation?

One material that is essential to the NH_4^+ detoxification process is a compound called alpha keto glutarate (α-KG). During assimilation, NH_4^+ is enzymatically attached to α-KG, producing glutamate. Even if NH_4^+ is in excess and the enzymes needed to assimilate it are available, NH_4^+ can still accumulate if α-KG is not available.

Laboratory experiments show that adding α-KG can reduce the NH_4^+ levels in shoot tissues and even prevent necrosis of cluster tissue caused by high NH_4^+ concentrations.[3,4,8] This supports the idea that there might not be enough α-KG available.

Supply and demand

Why might there may be a shortage of α-KG in the cluster? Plants use light energy to make carbohydrates (the building blocks of plant growth) through the process of photosynthesis. A plant must produce enough carbohydrates (or have enough in storage) to satisfy all of the growth that happens early in the season, which includes flower cluster development. But since there is so much growth activity at this time (rapid leaf expansion, shoot tip growth, and root growth) there is a strong demand for a limited supply of carbohydrates, especially with vigorous vines under limited light.

Compared to roots or shoots, the flower cluster is a poor competitor for carbohydrates being produced by leaves or coming from storage. Without an abundance of carbohydrates, the flower cluster doesn't have the raw materials to make things like α-KG for NH_4^+ assimilation, so there is a greater chance of IN occurring.

Much of the above reasoning is speculation. However, research related to this topic is going on at Oregon State University and many other places in the world, so we hope to know more soon. Until we understand the physiology of IN, we won't have a good basis for recommending ways of preventing it.

What can be recommended?

Even though there isn't yet a definite solution to the problem of IN, what can be done now? First, a determination of how much IN is occurring is necessary. A visual survey of clusters, looking carefully for the brown, necrotic flowers or cluster parts after berry shatter, will indicate the severity of IN. If there is a lot of visual necrosis and yield is down due to low cluster weights, IN is a possible culprit.

Aside from conventional methods of improving fruit set, to minimize the effects of IN, consider the following:

- Avoid high shoot vigor. Alter your trellis, pruning, or fertilization to keep vigor to appropriate levels. Common methods of doing this include balanced pruning, vine removal, or switching to a divided canopy. Row middles and irrigation can also be managed to affect vine growth in some cases.
- Maximize light interception in the early season through shoot positioning and/or moderate shoot thinning.
- Monitor vine nutrient levels and avoid or correct any deficiencies as soon as possible. Low levels of trace elements are sometimes responsible for poor fruit set (*e.g.* boron), and may affect IN.[6]
- Minimize vine stress (*e.g.* fungal infection, drought, or leaf damage), especially before fruit set.

The goal of finding a reliable method to predict and prevent IN from having economic impact is important. But could we eventually be able to use IN to our advantage by manipulating it to prevent cluster compactness, and decreasing the chance of botrytis infection? Only time, and research, will tell! ■

The author wishes to thank the Oregon Wine Advisory Board and Weatherspoon Endowment for support of research on Inflorescence Necrosis.

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by Richard Carey

New concepts in harvesting

I have written about technology developments for grapes and wine for many years, but 1994 was one of the first times I noticed a significant lack of innovation from U.S. vendors to our industry. Innovative technology came from European companies instead.

Lack of innovation from U.S. companies appears to be related to the downsizing of many U.S. corporations and their desire to increase profit margins. Unfortunately, the push for increased profit margins has a deleterious effect on product development.

As a result, product and application development are out of phase with the business cycle just at the time when this effort is needed the most. If U.S. companies would put more effort into innovation, they could strengthen their wine market position both domestically and in the world.

As a general rule, I believe that companies that put effort into innovation during tough economic times show the industry their commitment and create a perception that their company is a leader rather than a follower.

Perhaps U.S. trade shows can help encourage U.S. companies by offering a reward system for innovation similar to the systems found at the European trade shows, such as the Medals d'Honour awarded at Sitevinitech in Bordeaux, France.

Pellenc Grape Harvester Model 3200

The Pellenc model 3200 harvester, on display at Sitevinitech last November, won a gold Medal d'Honour for innovation, for example. The harvester has three sets of computer controls to allow the operator freedom to regulate and view the harvest in progress. The first set of controls is the automatic guidance system in which ultrasonic sensors detect the presence of vegetation and give the information to the master computer that turns the driving wheel to align the machine in the row. If the sensors detect no vegetation, the unit stops immediately.

Manual control of the driving wheel always has priority over computer control. Augmenting the ultrasonic sensors is an alignment system located at the corners of the 3200 footprint. These sensors recognize the vine trunks which helps correct the alignment whenever there is a difference between the axis of the vegetation and the axis of the trunks. Thus, the harvester is centered on the vines, and both sides are presented equally for uniform fruit removal.

The harvest head height above ground is determined by tactile force sensors beneath the lateral conveyors. A constant force measurement is maintained to assure that the head is kept at the same height relative to the vine fruit zone. Although the camber (slant) of the fruit head cannot be automatically ad-

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justed, it can be controlled by the operator during harvest.

Occasionally, vines can be damaged if a harvester slips or slides into them while moving down a row. The 3200 has sensors on all wheels that monitor rotational speed relative to one another. Whenever the unit detects a variation that indicates a slip or a turn, the speed of the rotation is adjusted to bring the unit into true tracking. Other sensors detect rear displacement relative to the front. Whenever movement to the side is detected, the rear wheels compensate to bring the 3200 back into alignment with the vine row.

The model 3200 does appear to automate and optimize many aspects of the fruit removal process. However, if your vineyard has many abrupt or radical changes in contour, it doesn't appear that computer control of the required adjustments is the best method of making the many quick changes necessary to accommodate that type of operation. In such cases it is more likely that the unit would often have to be operated manually. This would negate the desirability of purchasing this rather expensive tool.

Although the 3200 cab doesn't have a stereo system or Riccaro driving seats, it does look comfortable and provides the necessary amenities for doing the job. Pellenc has a video demonstrating the operation of this unit, and if enough vineyard managers ask for the video, maybe the company will be persuaded to bring a demonstration unit over for the 1995 harvest.

For more information, contact: AIM Inc., Ag Industrial Manufacturing, Inc., PO Box 53, Lodi, CA 95241, tel: 800/700-AIM1 or 209/369-1994, fax: 209/333-0736.

Gregoire - Field Gondola

Another of the unique pieces of equipment at the 1994 Sitevintech was the new field gondola by Gregoire. When grapes are harvested mechanically, the harvester transfers them either into a tank on the harvester that is pumped into a gondola at the end of a row or directly into a gondola that is towed by the harvester or a separate vehicle.

The Gregoire gondola can be towed behind a tractor or by the harvester. It looks like a simple gondola with a lid, but in reality, the unit is a more complex vehicle. Inside the gondola is a must chamber with a bladder, and below it, separated by a slotted steel false bottom, is a juice chamber.

Once fruit is placed into the main chamber, juice flows through the subfloor of the gondola into the chamber. When the gondola is full, the lid is closed and a vacuum is applied to the fruit, allowing the bladder to push against the fruit and gently press more juice into the bottom compartment. The gondola can then be transported to the winery.

Initial studies indicate that 30% to 50% of the available juice can be removed from the fruit by the time it gets to the pressing stand. At that time, the juice is pumped out to the fermenting tank, and the gondola is tilted to dump the fruit directly into the press. This method not only increases the capacity

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of a press, but also eliminates the need to roll an axial feed press to achieve the same press capacity. The juice should also contain less solids when pressed.

Gregoire touts the virtues of pulling a vacuum over the fruit. I don't see that offering as much of an advantage as they do. Significant data exists to prove that some aeration of the juice at this stage actually helps juice quality. Without this exposure to air, the winemaker may have to alter some other winemaking practices. The best use of the gondola may be for the quick separation of juice from skins such as in Blanc de Noir cuvée production or blush wine production. It can also be used to lower solids of juices, so fruitier fermentations can be produced.

Recently, Gregoire has made arrangements with Pickering Wine Supply to represent them in the U.S., and Gregoire hopes to have demonstration units in the U.S. for the 1995 harvest. *For more information, contact:* Pickering Wine Supply, 888 Post St., San Francisco, CA 94109, tel: 415/474-1588.

Idaho Bungs

One of the more interesting items at GrapeTech/WineTech in Sacramento, CA (January 1995) was the Idaho Bung conceived by a South African winemaker but manufactured in the U.S.

Simple to use, the Idaho Bung consists of a silicone plug with a stainless plate on the top and bottom, joined by a 7/16" nut and bolt. By tightening the bolt, the winemaker makes the bung conform to the shape of the bung hole. Since the design of the bung places it flush with the barrel surface, a full barrel may be rolled without danger of knocking out the bung.

The biggest concern about the Idaho Bung is the very attribute that makes it unique. A zealous cellar worker could over tighten the bolt sealing the bung in place with such force that pressure build up in the barrel would blow out a head rather than blow out a bung.

All silicone bungs wear out, and most have to be discarded. The silicone portion of the Idaho Bung can be replaced and the stainless portion reused. This lowers replacement cost of the already competitively priced bung to about half that of conventional bungs.

The marketing strategy has been to offer a sample Idaho Bung to any winemaker who asks. A large mailing of samples has already been sent to many wineries. If you don't receive yours, call and request one. *For more information, contact:* Idaho Bung, 905 West Amity, Boise, ID 83705, tel: 800/336-BUNG (2864).

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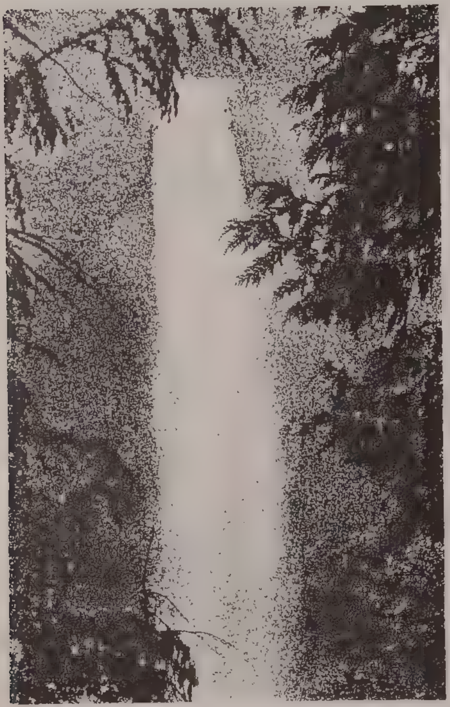

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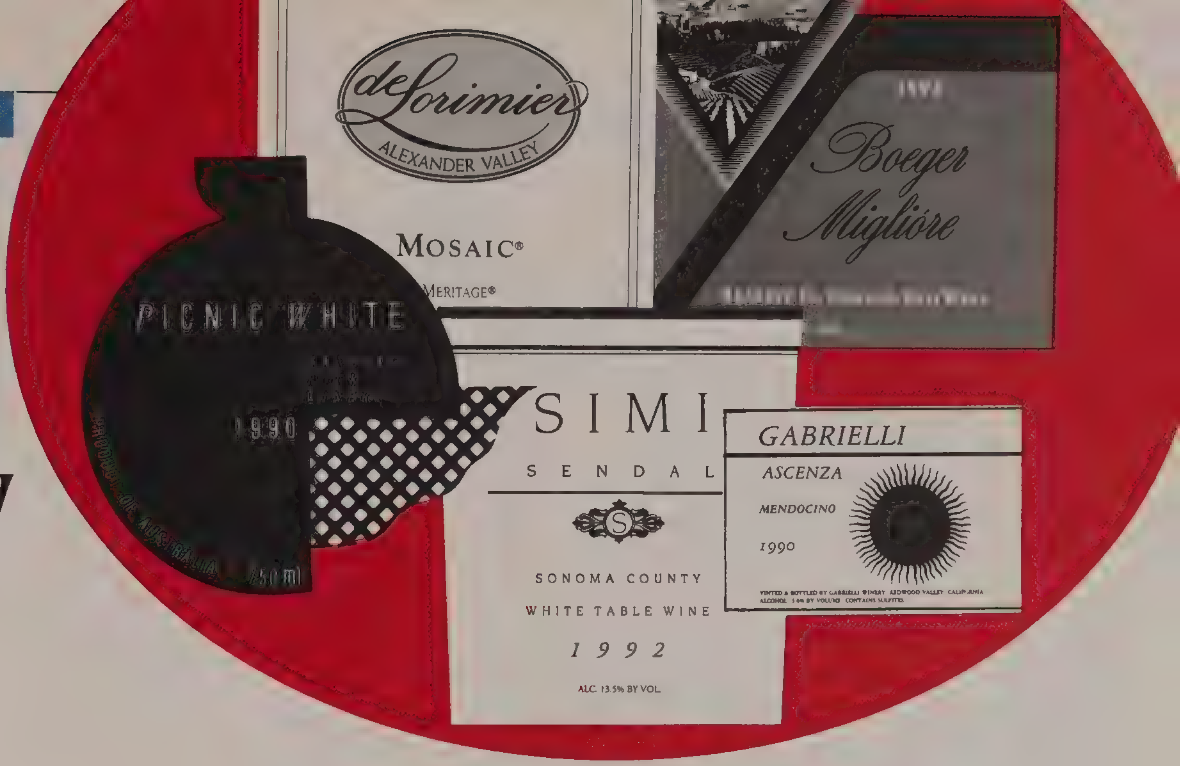
PART II

Pioneering proprietary names



by Millie Howie

PWV asked people directly involved with developing proprietary names for wines made at these wineries what inspired them and whether these names help or hinder the wines' success.

Simi Winery

When Simi Winery (Healdsburg, CA) developed a Semillon/Sauvignon Blanc blend and began seeking a name for it, "Sendal" seemed to fit because the name reflects the wine's texture. Sendal was a fine silken fabric used in Medieval times for church garments.

Part of the success of the first vintage, (1990, released in January 1993) came because, at the time, many restaurants were looking for a high-end white wine as an alternate selection to Chardonnay. (This was the beginning of the ABC — Anything But Chardonnay — trend.) Rarely offered by-the-glass, Sendal

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retails for $15/bottle.

Slightly fewer than 1,000 cases/year are produced, and production will probably remain at that level, since the grapes are sourced from specific vineyards. Even with the limited release, distribution is in all major U.S. markets by allotment.

Market statistics have indicated an interest in more approachable reds, so Simi introduced "Altaire" in 1993 with the 1992 vintage. The blend of Pinot Noir, Cabernet Franc, and Pinot Meunier was priced for wine-by-the-glass in restaurants ($7-$10/bottle retail).

Subsequent test market surveys, however, showed that the consumer and the trade were uncertain of the style parameters of a proprietary wine in this price level. Because of the modest shelf price, Altaire was not a product that would justify a major investment of time and money to educate consumers. Simi's last production of Altaire was the 1993 vintage.

"What we learned," comments Steve Messinger, vice-president of marketing, "was that Simi's customer would identify the position of a proprietary red wine more easily in the same price category and perceived style as Sendal."

deLorimier Winery

While deLorimier Winery (Geyserville, CA) does make varietally-labeled wines (Chardonnay and Malbec), its red and white Meritage wines and late harvest Semillon have borne proprietary names since the first crush in 1986. Initially the acceptance was encouraging. The term Meritage had not yet been conceived, and it was no harder to sell Mosaic (red Meritage) and Spectrum (white Meritage) than it was, a little later, to sell Meritage.

"We are less reliant on the name identification now because there is a following, particularly for Mosaic, of consumers who understand what the name indicates. And there are a lot more wineries using proprietary names now than there used to be," says John Woodward, sales manager.

In Houston, TX, and other cities, where restaurants and trade outlets are hungry for alternatives to Chardonnay, proprietary blends are more easily accepted by the public, Woodward reports. Response varies, and some markets want no part of it. In college towns, for example, there seems to be an eagerness to try things that are new and different, with little concern on price. In New York, where people have an open acceptance of wine in general, the wines sell well. In Washington, D.C., which tends to be more conservative, there has to be more education.

Production is about 1,500 cases/year for Mosaic which sells for $18/bottle, and 2,000 for Spectrum selling for $10/bottle.

Boeger Winery

Greg Boeger, president/winemaker of Boeger Winery (founded in 1972 in Placerville, CA), enjoys trying new things. This curiosity prompted recent planting of a wide variety of grapes including Sangiovese, Nebbiolo, Refosco, Mataro (Mourvedre), Tempranillo, Syrah, and Grenache.

The first Boeger proprietary wine, "Hangtown Red," was a blend of Rhone

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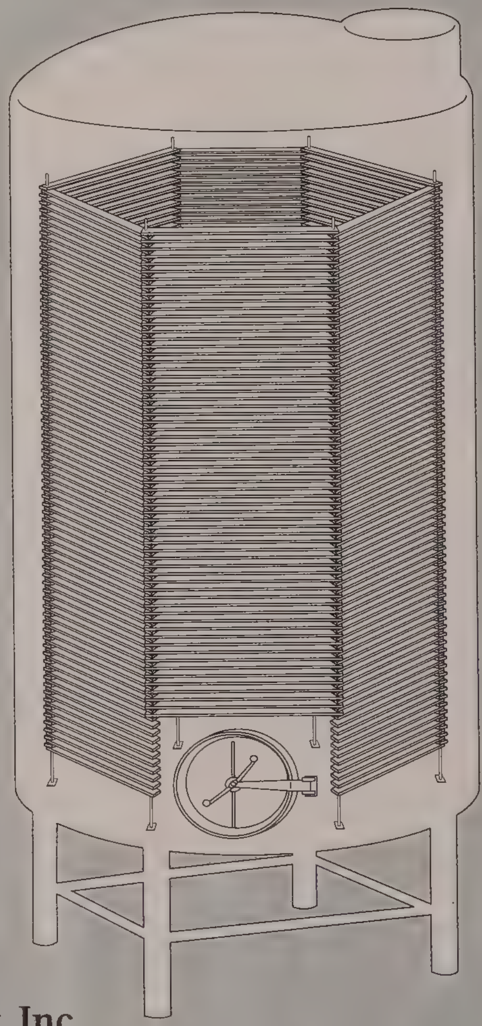

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grapes from vineyards in Auburn and Roseville, CA. More recent blends usually consist of Zinfandel and Cabernet Sauvignon. This has been very successful in the national market since its introduction in the mid-1970s. The price has remained constant at $6.75/bottle, although production, which started at 800 cases/year, is being reduced to 500 cases/year as grapes in the blend are shifted to premium wine production.

In June 1994, Boeger introduced "Migliore," the first of three "M" wines planned from estate vineyards. He blended Barbera, Zinfandel, Cabernet Franc, Mataro, Petite Sirah, and Refosco and bottled 430 cases. The wine sells in the tasting room at $12/bottle and is distributed to selected restaurants.

Migliore means "the best" in Italian. It will probably be followed in 1996 by "Majeure," a Rhone blend of Syrah, Grenache, and Mourvedre, and "Milagro," a Spanish blend of Tempranillo, Graciano, and Grenache. All will retail at about $14/bottle in limited quantities.

Gabrielli Winery

"The idea for 'Ascenza' came to me in the late 1980s after we had the opportunity to barrel-ferment some Chenin Blanc from a phylloxera-infested vineyard," recalls Jefferson Hinchliffe, winemaker at the Redwood Valley, CA winery. "Until then, I had a low opinion of California Chenin Blanc. I had seen it as something to drink, but nothing to get excited about.

"The wine was a real surprise, and we started thinking about a variety for blending which would complement Chenin Blanc. We hit upon Riesling. We wanted the wine to be completely dry, and we wanted to see if we could produce that wine from grapes normally expected to retain a certain residual sweetness.

"What we wanted was a wine without overt varietal character, but with varieties which would blend harmoniously." The blend from the 1990 vintage was Chenin Blanc, Riesling, Semillon, and some Gewurztraminer, and it was so different from what is expected from a Chenin Blanc, that Hinchliffe felt it needed a name of its own."For a year, we put names on a blackboard, and finally decided on Ascenza, which loosely means 'to rise' in Italian. We felt it conveyed some of the ideas we associate with the wine. On the label is a symbolic sun, adapted from an ancient [American] Indian drawing, which indicates power.

"Chenin Blanc contributes a steely, melon flavor," continues Hinchliffe. "The Riesling offers quite overwhelming, luscious fruit — so good that we are now making a varietal Riesling as well. Semillon provides unctuousness and accessibility, and there is less than 5% Gewurztraminer for a little added spice. We tried blending a little Chardonnay, but it didn't add anything to the blend, and we were afraid people would get the idea we were just making an imitation Chardonnay."

The wine is 100% barrel-fermented, and the Chenin and Riesling usually go through malolactic. Future releases will be aged in Mendocino oak barrels. Hinchliffe is considering a red Ascenza, which may be a Sangiovese/Syrah blend.

"We couldn't get Ascenza reviewed by anyone that first year, because they didn't

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have a category for it," Hinchliffe remembers. "Naively, we thought they would review it on its own. Finally, we accepted *Connoisseur's Guide*'s positioning of it in the Chenin Blanc category, and it came out with a top rating."

The first release was 1,100 cases, now up to 2,500 cases. Ascenzia retails for $12/bottle. Hinchliffe reports that the Vintners Club (San Francisco, CA) has been very supportive, including Ascenzia in an annual tasting of proprietary white blends.

Hanging Rock Winery

Founded in 1987, Hanging Rock Winery is a family-run operation in the Macedon region of Central Victoria, Australia. The winery produces several premium varietals (ranging from $15 to $20/bottle), including Chardonnay, Shiraz, Cabernet Sauvignon, Merlot, Fume Blanc, Gewurztraminer, and Pinot Noir, and a sparkling wine, Macedon N/U ($35). John Ellis, Hanging Rock's winemaker/owner, has also created a line of proprietary, everyday wines called Picnic.

"Picnic was conceived early in the life of the winery, when, with members of our family, we were breaking off our day's work in the vineyard and proud of our achievements ... ready for a glass of wine." Ellis says he wanted to make a wine for immediate drinking, "not one to be to serious about, but one everybody can enjoy." He wanted to create a wine with pleasant fruit character that was best served cold, not too sweet and not too dry.

The first releases were simply called Picnic White and Picnic Red. They were well-received in the United Kingdom and production soon exceeded the winery's capacity. Ellis continues to make the Picnic wines for the Australian market himself but repositioned these Picnic wines by labeling them as varietals: Picnic Red Shiraz & Pinot Noir, a 50/50 blend of the two varietals ($8); Picnic Chardonay ($5); and Picnic Sparkling Brut ($10).

Picnic labels borrow elements from the other Hanging Rock labels, including the hanging rock, and add a flowing length of gay red-and-white-checked tablecloth to help capture the mood of the wine. ■

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It pays to act a little *crazy* — or — What it *really* takes to sell wine

by Penelope Wisner

"Wine is in my blood," claims Vivien Gay, a small woman with a cap of brown hair and a twinkle in her eye. She points to her father, a vineyard owner, and her cousin Harry Waugh, wine writer, as proof. She enjoys a wide reputation bought with a string of successes from a decade-long career at all levels of the California wine industry.

An Englishwoman, Vivien arrived in California in the early 1980s and landed a job as an assistant buyer at Castro Village Wine Company, a small shop on 19th Street, San Francisco. Soon, she was on the streets — in Marin County as a salesperson with Grape Empire (wine distributor). "I inherited fantastic organizational charts from the woman whose district it had been. With hard work, I was able to show nice growth."

Such a show that when Grape Empire was bought by Southern Wines & Spirits, Vivien was promoted to district sales manager for San Francisco, Marin, and Sonoma counties. "It was a wild and woolly time," she recalls. "We jumped from eight to 50 salespeople." When management discovered how large an area Vivien had been given to cope with, her territory was split and she retained San Francisco. Vivien stayed almost three years. "The experience was invaluable," she states. "I would not be where I am without that time with Southern."

After Southern, Vivien joined Terrence Clancy at Callaway Vineyard & Winery (Temecula, CA) as northwest regional manager. She quickly became national sales manager and ultimately, vice president of sales and marketing. She left in July 1990 to accept the challenge of launching the new St. Supery (Napa Valley) brand and associated labels: Bonverre and Mt. Madrona. Now that the winery has a well-developed growth profile, Vivien has moved on to Sonoma-Cutrer Vineyards (Windsor, CA) as vice president of sales and marketing.

Photo by: Dona Kopol Bonick

An interview with Vivien Gay

Selling wine at the account level

When selling to an account, be succinct and to the point. Accounts see so many wines that you have to clearly identify the qualities that set your wine apart. For instance, within major regions such as Napa Valley, there are districts, subregions, and specific vineyards, each with a slightly different microclimate. An explanation of geographical differences is a good place to start a discussion with someone you do not know.

Forming relationships that pay off

When it comes to selling wine, relationships count for a lot. You form relationships by being consistent, by following up, by doing the things you say you will do. It is amazing how many people say they will do things and then never follow through. It is not unlike returning telephone calls.

Particularly if you are a route salesperson, you want to develop a rapport with a buyer based on trust. The more you call on that person, the more they will trust you — if you are consistent and follow through — and the more they will look to you to steer them in the right direction. They might call you if they need a wine instead of somebody from a competing house.

As you call on these accounts more and more, you will learn their buying patterns. You will know that at a particular time of the month they are looking for a certain something. You make sure you are one of the people in there at that time.

Also, when making a sale, especially for a wine new to the market, you want to be sure — where legally possible — to offer wait staff incentives to back up the sale. As a responsible sales representative, for every new wine on a list or by-the-glass, you must offer to do a seminar with the wait staff. The restaurant has the option of saying no, but you have put your best foot forward.

With retailers, it can be very different. Wines are often just put on the shelf with no introduction. You have to hope there is enough pull through on the consumer level to move that wine off the shelf. But you can help, if the retailer will let you, by offering to taste his staff on the wine. The ultimate sale is not to the retailer or restaurateur, but to the staff. They are the people who sell your wine.

All these components add up to your relationship with a buyer. They demonstrate that you are responsible for your sale, not selling and walking away, but willing to make the sale work for him as well.

Building rapport

Rapport is built on basics, on common sense. Buyers must buy. It is their job to have wines by-the-glass, on their wine lists, or on their shelves. They are going to buy from somebody and you want to make sure they buy from you.

So: You are consistent. You come in with good products. You get to know your account — what they are looking for. You ask the key questions.

Key questions

Ask questions and *listen* to answers. If you ask the correct questions and listen to the answers, in a very short time, you will know exactly how to proceed with that sales call. One of the major faults of salespeople is that they forget, or do not ask, the questions. First—

- **Ask:** *What do you need?* Do not push what you think the buyer needs. Find out what your customer needs.
- **Ask:** *When do you need it?* Will the brand have a vintage change in the interim?
- **Ask:** *What price are you looking for?* I try to leave price until last, after tasting, because I do not want to influence the buyer's decision before tasting.

After tasting each new wine with the buyer—

- **Ask:** *What do you think about it?* Sometimes the account will make notes and sometimes they will not.

After you finish tasting through your wines, go back and—

- **Ask:** *Is there anything here you can use?*

Once you have asked the questions and received answers — for instance: "We do not need anything right now, but I like the Merlot" —

- **Ask:** *When can I check back with you?* The buyer might respond, "Please call me the week before Christmas."

You remember to do that. Chances are, you will have to telephone three or four times or even five times before Christmas, but that is when you were told to call and that is your moment. You make sure you get hold of the buyer who will then say, "Call me the first week in January," and you do it. You keep tenaciously holding on because there was an opening there.

Getting the appointment

Often the hardest thing you have to do is to get the appointment. That can seem impossible. You need to break the ice, to get through to the person because you know, once you do, he or she will enjoy your presentation and the taste of the wine.

I have tried many ways of gaining the attention of a prospective account. We have sent a "foot through the door" — one of those plastic feet in a package with a little note. It did open the door, we did get an appointment, and we did make the sale. I followed up the sale with a bunch of flowers, because I was worried about the impression the foot alone had made.

When St. Supery kicked off Bonverre, we sent marguerites (daisies) around to various accounts as little door openers. (The heroine of the Bonverre mythology is Marguerite Bonverre.) I have sent letters stuffed with play money with the line: "This is how your profits will increase if you buy this wine," and helium balloons with the message, "May I have an appointment to drop in and see you?" A little gimmick such as

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At the appointment

If you take six wines to an appointment, I think you are pushing it. I would suggest no more than three or four. I always tell the buyer what I have and ask if there is something of interest. If he is not interested in something I want to sell, I will try and steer him to it: "I have an excellent new Chardonnay, a new vintage. You really should taste it. I know you have tasted many recently, but I would like you to remember this even if you are not interested right at the moment." This way, you can back yourself into tasting the wine.

It can be a big mistake to go in, sit down, and open all the bottles to be offered before the buyer joins you. I have seen many salespeople do this. It is much better to allow the buyer to join you first. Have the bottles out or hidden below the table. Then open the bottles as you make your presentation. An account may say, "I'm not interested in the Merlot today, Vivien," so do not open the Merlot and waste it.

I try to taste with the buyer rather than leave unopened bottles behind for tasting. Once tasted, however, I will often leave the bottle behind. If I think the buyer is close to buying, I will say, "Why don't you keep this bottle and taste it with the staff." Then, you have to remember to follow up the appointment with a call to ask: *Did you taste it? Did you like it? Do you want to buy it?*

If the account bought the wine, then I will often leave the bottle as well, saying: "Keep this for yourself, the staff, and the kitchen, so they also know what is going on."

The Balky Buyer

Sometimes a buyer thinks the brand I am selling is not appropriate for his account. In order to counter the impression, I must know the account, what is already on the wine list or on the shelf. I would never be confrontational, but I would ask the buyer why he or she felt the brand was not appropriate. Often, once you start talking with these skeptics, their reasoning does not hold water and you can change their minds.

For instance, you go into an account, and they say: "We do not want to take your wine because it is a chain store item." Then you look around and say, "So-and-so and so-and-so are, too, so where is this idea coming from?" Or you go in and they say, as they said to us at Callaway: "That is a stainless-steel Chardonnay." And our response was: "That is correct, and do you understand that so are various Chablis from France....?"

Identifying the person who makes the actual buying decision

Talk to your competition. One of the things I think we do not do enough is to talk with each other. We are all in this together. Sometimes it is difficult to know who is actually doing the buying. A fast way to find out if you have good relationships — is to ask around, especially ask your competition.

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If you suspect the person you have been calling on is not the buyer, you must be very conscious of that person's ego. Draw in the other person whom you do perceive as possibly doing the buying — make an appointment with the two of them. You will usually discover that the person you see is not the buyer only after several attempts and not getting anywhere. In such a case, I have gone around the purported buyer to get to the real buyer.

For instance, in a hotel, the purchaser has a lot of power. The food and beverage manager makes the decisions, but the purchaser, who does the actual ordering, can make or break you. Get to know those people, too. Take them out to lunch now and then. Or bring them a T-shirt or a bottle of wine. Every step of the way, you create relationships.

Working with a distributor

At Southern Wines & Spirits, I learned many important lessons, among them: how to be a distributor. How to deal. How to work the streets. How to talk a language that is not very polite but is real. I learned the importance of regular, consistent follow through. It is monotonous at times and you feel defeated at times, but if you keep it up, things really happen for you.

Motivating a distributor is very different from motivating a restaurateur or retailer. Make your distributor accountable to you as the wine supplier. Be very clear. It is hugely important to do constant, continual distributor meetings. You have to be very aware of how your distributor is doing business at all times. You suggest a price for your goods and a program price. You make sure the distributor keeps within your agreement.

One of the mistakes smaller wineries make is to give their brand to a distributor and then expect them to do the job. Those days are long gone. Especially with a small brand, it is important to stay in close touch with each distributor, to give clear parameters and goals you want them to achieve. Then follow up, follow up.

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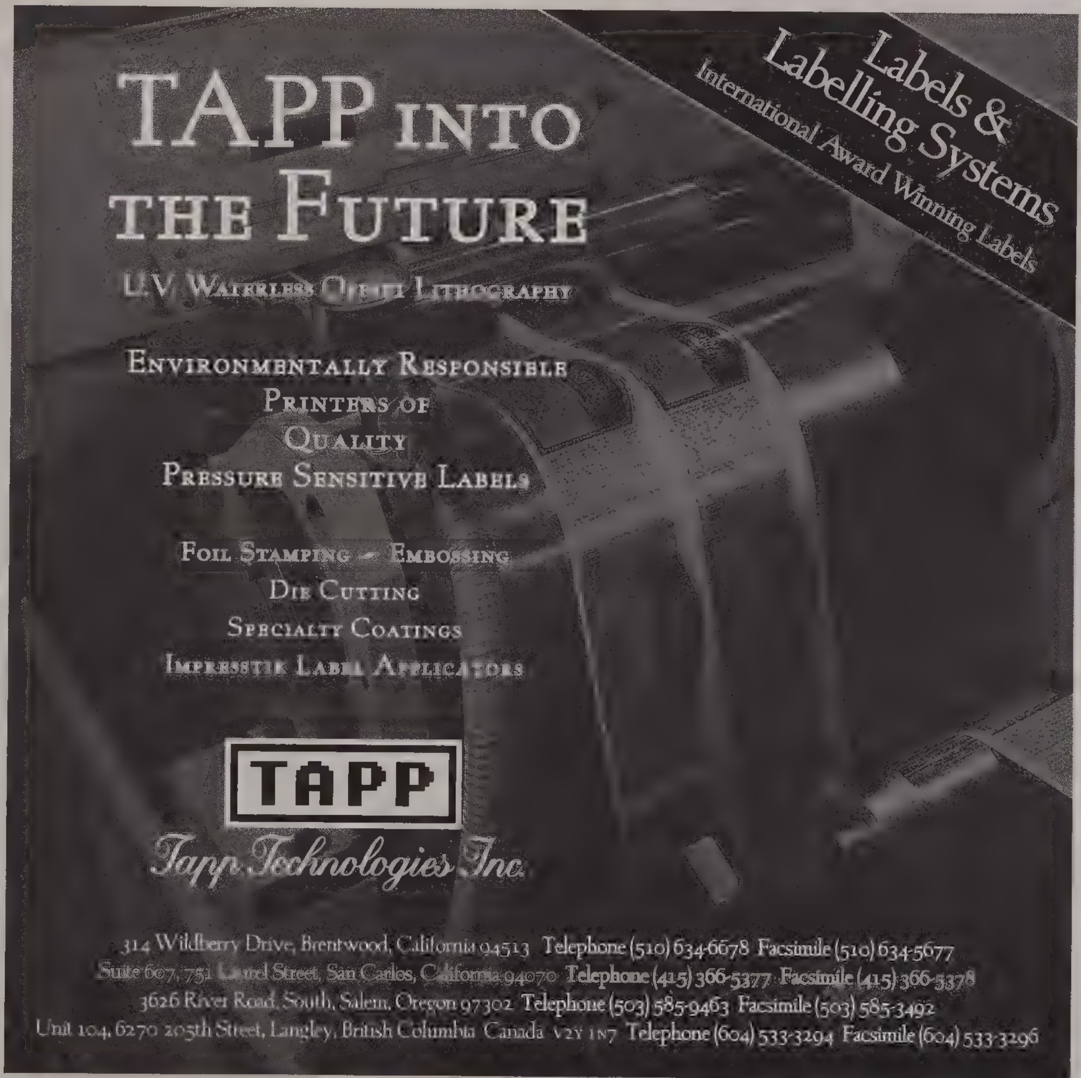
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Selecting a distributor

I like to select a distributor who wants me. Certainly there are occasions on both sides where that does not happen. When it is mutual, in that honeymoon period, the distributor wants to work with you. That is when you make it or break it with the salespeople.

I listen carefully to distributors during initial talks. I will go into a marketplace and talk to several distributors before making a choice. There may be several interested, but there will usually be one that stands out usually because they have tasted the wine and done a little research on the brand. For example, several times there have been a few distributors interested, yet one of them who had had samples for a month had not tasted them.

Look at what is in the distributor's book to see where you stand competitively from an appellation and price viewpoint. Look at their manpower and the back-up they have for their salesforce. Does top management get out on the street? That is vital. Do they have a good support system for the accounts, such as a menu program? You want to know that samples are free to salespeople and that the distributor will work with realistic margins.

Before you travel to a new marketplace, you need to do some research to identify the distributors as well as key accounts. When you first go in to see a distributor, talk about your philosophy and listen to theirs. Then discuss the pricing of the brand and the depletion dollars available when the brand is on discount. With that knowledge, ask: "How much do you think you could sell?" I will have a petty good idea of what I want to sell, but I do not want to commit myself until I have heard their opinion.

Then discuss how to place the brand. The distributor needs direction. Depending on the brand, you should decide what percentage of distribution should be on- and off-premise. You might set 70% on-premise as a goal.

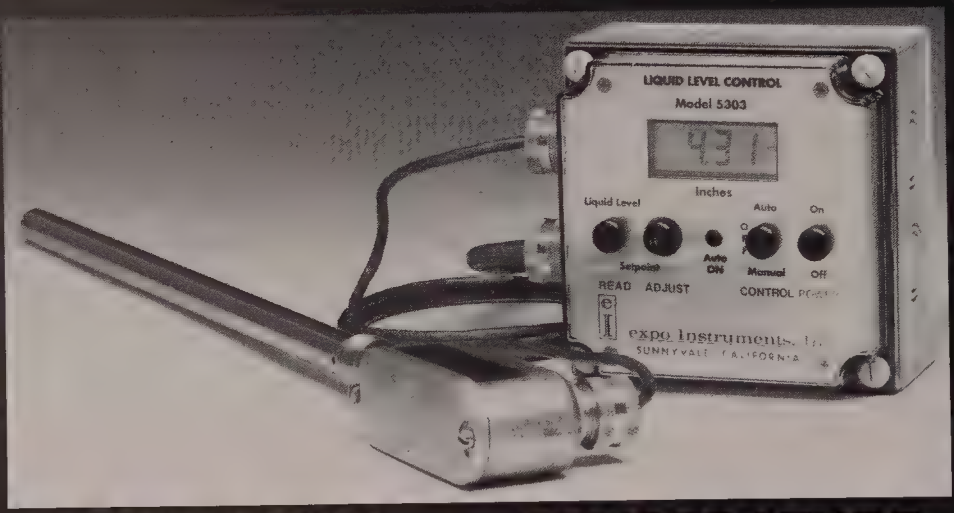
Generally, the distributor has a key account list, and you can then go over it together. Once you have an agreement, you have the option to kick off the brand. You are only new once, so you have to make sure you do a proper kick-off.

A proper kick-off

[For distributor salespeople at the usual distributor/supplier meeting]

Props, gags, and skits are essential to capture the attention and sympathy of sales people. However, you can only do these things once you have already earned credibility with management!

For instance, in late 1994 St. Supery kicked off in Southern California with the small American Division of Southern Wines & Spirits. The parent also has the opportunity to sell the wine. We held a major meeting with the American Division in a local restaurant, going through the wines over dinner, and they have since traveled to see the winery.



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For the parent division, the presentation was made at a two-day holiday meeting. If you understand the pain and boredom of sitting still for two days to listen to suppliers as they show slides, and recite demographics and program descriptions, then you will also understand that what does energize and motivate these people is someone who comes in with a little creativity.

We were the very last supplier of the meeting. I had told Tony Salomone, St. Supery's Southern California manager and a person who shares my enthusiasm for creativity, that I had always wanted to dress as a nun for one of these meetings — St. Supery and its Pope Valley vineyard lend themselves to this theme.

We used our 15-minute block to hold a mock prayer meeting. We hired singers dressed in white with little gold halos to open the meeting by singing "When the Saints Come Marching In." They introduced Father Anthony Salomone and me, the Flying Nun, just in from Texas. Everything we said was connected to our brand and Southern Wine & Spirits. We had rehearsed this for all of 15 minutes ahead of time. The singers closed the meeting with the "Hallelujah Chorus."

In another example, while at Callaway, I decided to embroider on the theme of a new ad campaign for the no-oak Chardonnay that showed a barrel in smithereens. The winery shipped an empty barrel to me for a meeting with 250 distributor salespeople, and I had it placed on the stage. I primed a few people so the barrel would be placed just right and prepared for me.

I rented a chain saw and hid it on the stage. I started the meeting in the regular fashion describing the program of the month and then saying how happy we were to be kicking off the new ad campaign. At just the right moment, I whipped out the chain saw, started it, and sawed through the barrel. Sawdust flew and the noise was ferocious. With the barrel in half, I brushed off my hands and said: "That is what we do with barrels at Callaway, we turn them into flower pots!" The presentation caused quite a stir, and I did take it on the road. In Kentucky, I used a whiskey barrel and a saw from the hotel.

From Terrence Clancy at Callaway, I learned that it is okay to be a little wacky. He taught me not to be abashed by differences but to use them in a positive way. I will go to great lengths to create an impression.

For a Dollarhide Ranch (St. Supery) presentation, I have worn black leather chaps, cowboy boots, dollar bills stuffed in my pants pockets, and come in with guns blasting to the music from *Rawhide*. It is probably a good thing that the first time I did this, I had no idea what I looked like! I was surprised when the inevitable reaction came. But I played up to it: "Yes, I have just left the Mustang Ranch."

I continued to do that presentation and even learned to vamp it up a bit. I want my people to be creative, and they

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respond. One of them talked in a meeting of how tough skinned a salesperson must be to sell wine and tossed condoms to the audience. Once, I borrowed some golf clubs and every time I made a point, I hit a woofer ball into the audience. At the end I held up a ball and said: "If you don't think it takes *these* to stand up here...."

When it is time to move on:

When a person is strongly associated with a brand in the eyes of the industry — as I was with Callaway — it is sometimes necessary to do something about it when moving to a new brand. You have to acknowledge the past *and* immediately create an impact that associates you with your new brand. Humor is key here. When I started at St. Supery, soon after leaving Callaway, I knew many of the people in the audience at distributor meetings had seen my chainsaw presentation, so I made them laugh with a new presentation using oak staves and Super Glue.

Motivating individual distributor salespeople

Motivating distributor salespeople is particularly hard to do, especially as distributors get very large. A meeting, such as the prayer meeting presentation, helps.

The salespeople need to be able to trust you as much as an individual account does. Ride with them; tell them the story; get them on your side as much as you can. Follow up when you say you will. If you are a small winery, you know they have bigger brands with more dollars, but you also know there is room for the smaller brands.

After you have ridden with the salespeople, and they know you well, ask the manager if it is possible to continue interacting with them. Some will not allow it; most sensible distributors will. Then pick up the telephone and say: "I was in such and such a restaurant; can we go there together?"

Start doing things for them. Start selling the wine for them, then they will see you are on their side, and they will start selling for you. Follow up, follow up, and follow up! If you say you are going to drop some corkscrews over to Joe Blow, you do it. You make it clear to the sales representative that you are there to help. If they cannot get to an account, you can and you will.

The key to sales is so simple

- ➲ Look for the creative response.
- ➲ Be very organized.
- ➲ Be very reliable.
- ➲ Use common sense.
- ➲ Do not blurt out something when you shouldn't.
- ➲ Keep to the point (allow for some small talk, but do not spend too much time)!
- ➲ Treat your accounts as human beings.

Hold team meetings, particularly with the big distributors, after the big, general meeting. You will get to know the salespeople, to understand what they like, and you can make them part of your team. This is not the team they are on, but it is what you need.

Not everyone will join your team, but if you can get a handful of them, perhaps 20 percent, you will be doing very well. Once you have identified them, back them up, and give them everything they need.

Incentives also work, of course. Most salespeople are still looking for money, I think. But the bottom line is that the relationship has to go further than incentives. Salespeople have so much money thrown at them, plus trips, cars, and more, that it is very hard — maybe impossible, especially for small wineries — to compete at that level.

Materials can be helpful

I always had my trunk absolutely full when I worked with the distributor. This is harder when on the road. You must have samples and materials — sales sheets, T-shirts, corkscrews, crumbers, and — if you can— magnums signed by the winemaker. I would always have one or two of these hidden away for emergencies.

It is like being a girl or boy scout — Be Prepared! Imagine you see a sales representative on a sales meeting day, and she happens to need a sample of Merlot. And you happen to have it and put it in her hands. You will make that sale. You might have liked a call the night before, but that is often expecting too much.

When good things go bad

Creativity is key every step of the way including when things mess up as they inevitably will. Humor goes a long way to rectify a bad situation. Recently, St. Supery's Midwestern regional manager, Cheryl Ames made a very creative apology to an account. The account had ordered a certain vintage of Merlot. It was reserved and put aside in the warehouse and then, by mistake, shipped out to someone else. When Cheryl's account needed the wine, it was irretrievably gone.

Cheryl made an appointment and went to see the account. She said, "I am here to butter you up," and took a stick of butter out of her briefcase and laid it on his desk. She continued, "You are doing a terrific job with our brands and tales of your success have gone across the country."

She showed him a national sales letter that did indeed detail his programs. She then added, "We care about your business," and produced a first aid kit. She got to the heart of her presentation by saying, "There is an apology to be made," and pulled out a bouquet of flowers and chocolate kisses. Then she explained how the Merlot had been put aside and mistakenly shipped elsewhere.

She pulled out a bottle of the more recent vintage and a sales sheet. She closed with, "We hope you will continue to use us despite our error." He made no decision at that time, but later, Cheryl did make the sale. You do have to know your account in order to pull something like this off successfully! ■

PART V

SUCCESSFUL TASTING ROOM

Non-wine sales boost profits

**by Mark Kendziorek,
Tasting Room Associates**

The simplest and most cost-effective way to increase sales and profits in a tasting room is by retailing non-wine items in addition to wine.

Wine tourists are looking for a special experience, and after wine tasting, the most important aspect of their overall enjoyment is finding items for sale that tickle their fancy. Even if they don't buy them, they will leave with the lasting impression that your winery offers something unique, and they will return.

Beringer Vineyards in Napa Valley, CA is a good example of a winery with a very successful retail operation. Jim Eckert, retail manager at Beringer Vineyards reports approximately 250,000 visitors annually and retail sales in the "several million dollar" range.

It was not always that way. Prior to 1982, Beringer carried no clothing and only a limited selection of ancillary items. "We were one of the last (tasting rooms) in Napa Valley to bring in T-shirts," recalls Eckert. Non-wine sales have increased to 27% of Beringer's total retail sales volume. The biggest sellers are high-end, logo-embossed clothing and glassware. "Ties have been a hot item since the summer of 1994 in our tasting room. The most popular gift items have a two-year life," adds Eckert.

"We go out of our way to carry only high quality, tasteful items," continues Eckert. While he and his staff purchase some items from representatives who come to the winery, they also search out more uncommon merchandise at gift shows and wholesale showrooms. "Don't wait for the reps to call," says Eckert, "you'll end up carrying the same items as everyone else."

When asked why Beringer waited until 1982 to carry other retail items, Eckert admits to a fear common to tasting room managers. He didn't want to look like just another gift shop that also carried some wine. "But now, retail sales are extremely important to our total tasting room picture. Especially in Napa Valley, customers are looking for a unique experience, and shopping is a big part of that."

Glass Tech (Beaverton, OR) is a leading supplier to wine tasting rooms of wine-related retail merchandise. Wineries with successful tasting room operations often tell Bruce Smith, owner of Glass Tech, that non-wine sales comprise up to 25% of total retail sales.

Smith supplies everything from logo'd wine glasses to insulated picnic totes and other "extra" items. Smith, too, feels that the wine tourist is looking for more than just wine.

While glassware is Glass Tech's most popular product, cork pullers are also big sellers. "And there has been a big increase in sales of insulated bottle carriers, picnic bags, and related merchandise," reports Smith. "The most popular type of wine glass has changed. Five years ago, the plain 6-½ oz. tasting glass was the big seller. Now, in Oregon, it is the 8-oz. glass with a colored stem selling for twice as much."

Merchandise pricing

There are two schools of thought about merchandise pricing. One says that merchandise should be considered promotional material. Following this line of thinking, some wineries mark-up their non-wine merchandise approximately 25%.

The other, more profit-oriented school does things the way most retailers outside the wine industry do them. The retail industry standard is the "keystone" or 100% mark-up. This returns a gross margin of 50%.

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Advantages to the "keystone" method are obvious. You receive a better return on your investment, a higher total sale, and therefore a higher profit. Through astute buying and item selection, you can often find items that return even more than 50%, such as custom-made merchandise, items purchased on sale, on close-out, or produced in very limited quantities.

The key is to spend the time and effort to locate and purchase wisely. If you offer the same merchandise as everyone else, your customers will never leave feeling they were in a unique and special place.

What to sell

In the eyes of the consumer, wine has a mystical, almost sacred nature. As wine professionals, we have our semi-secret societies, rituals, jargon, and wine has certain magical aspects that even scientists can't explain (fermentation, bottle ageing, flavor components, and terroir). There are also countless pieces of equipment that enable us to enjoy our chosen sacrament.

Because wine is confusing and intimidating to most people, they will gladly buy anything that simplifies and explains wine in a non-threatening manner or helps them serve and consume confidently.

What consumers are looking for can be divided into several different categories:

The perfect, easiest-to-use corkscrew. Every year a new batch of cork pullers comes on the market. Can this be because most people still can't get a cork out of a wine bottle, or is it because we are always looking for a better mousetrap? Whatever the reason, cork puller sales continue to increase.

On the high end are counter-mounted units retailing for more than $100. On the low end are cheap logo-embossed pullers that retail for $.99 and are often given away for promotions.

There are a variety of others in between. My personal favorites — and big sellers — are the Le Cruset Screwpull table and pocket models retailing for approximately $20 and the lever model for $125. The ah-so is an old standby, but many wineries report its sales have declined dramatically. The waiter's screw is also a steady seller in most tasting rooms.

Items that enhance the serving and consumption of wine. Tasteful glassware, decanters, drip rings, decorative stoppers, and coasters all have a place in a well-stocked retail tasting room.

Unique souvenirs of their trip and visit to the winery. Logo-embossed items, such as glasses, corkscrews, clothing, pins and buttons, gift boxes, and so on, offer customers mementos that can be enjoyed (and keep your winery's name in front of them) for many years, long after the bottles they have purchased are gone. Jim Eckert reports that upper-end clothing (retailing for more than $20) are a successful complement to winery T-shirts.

Items that poke fun at the pomposity and pretense of wine. Humor sells. As long as it is respectful and not derogatory or hurtful, I see nothing wrong with merchandise that has a little fun at

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our expense. Besides, it's good for us to laugh at ourselves.

Merchandising

Go shopping sometime. Nordstrom or another upscale clothing store is a good place to start. Observe the way customer traffic is channeled so that merchandise is readily accessible, and all the available floor space is used effectively. Similar items are grouped in the same area, and the customer is guided physically through the store to get to it all. Look at other aspects that help make this a successful retail operation.

Next, go to a successful hardware store and watch the staff help the customers. Notice how certain high-volume items are merchandised near the door or towards the back but in view. Impulse items are located near the cash register. Check out the sale and close-out areas.

Learn from these retailers. They are masters of merchandising. Most of what they do we take for granted every time we step into a retail environment. But it is what can make the difference in successful retailing of ancillary merchandise.

Demonstrate what you sell

The single most effective method I have found to sell quality merchandise is to use it in front of the customer. For example, when opening bottles for tasting, always wait until you have an audience to watch. Then, use the opener you are most comfortable with and that you want to sell more of.

I prefer the Le Cruset Screwpull for this. It is an intriguing-looking instrument that's almost effortless to use. With the increase in older wine tourists, many people appreciate that little arm strength is needed to operate it. By using it right in front of customers, you have piqued their curiosity.

It is very important that the person demonstrating these and any other items be very comfortable using them. Nothing ruins a potential sale quicker than salespeople fumbling with something they are trying to sell. So practice alone or with co-workers before you have an audience.

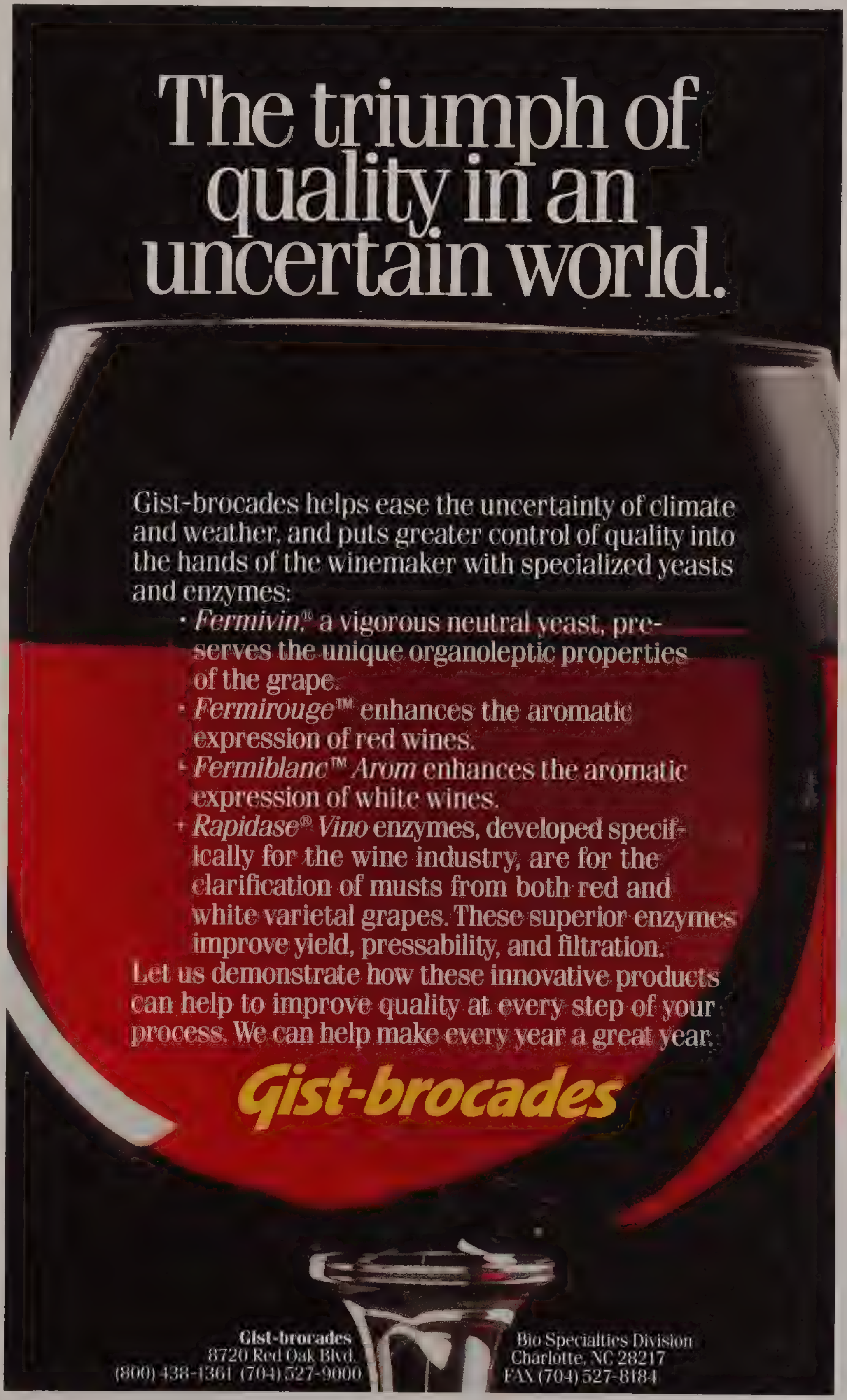
How to stock your tasting room

Stock items that are of a quality on par with your wine and project the image of your winery. Logo-embossed glasses are a must. Locate a high quality glass printer and work with its staff to get your glasses right. Carry several styles of glassware, not just one or two. Colored stems are an option. Offer special deals on sets of four or six. Gift packs of glasses and wine sell well.

Be creative. Regularly experiment with new items. Purchase just a few units the first time and watch how they sell. The great thing about selling non-wine merchandise is that you can start cautiously and invest very little at first. Never purchase a large amount of any one item until you know it sells well.

Unlike wine, which is made once a year, merchandise can be re-ordered on a regular basis. Therefore, inventory can be kept to a minimum. Don't be seduced by offers of discounts for large bulk purchases until you are sure the

Continued on page 74



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Portocork Internacional, S.A.
Santa Maria De Lamas
Portugal

fp Portocork, Inc.®
601 Airpark Rd.
Napa, CA 94558
707.258.3930
FAX 707.258.3935

See us at ASEV, booths 704-710, 805-811

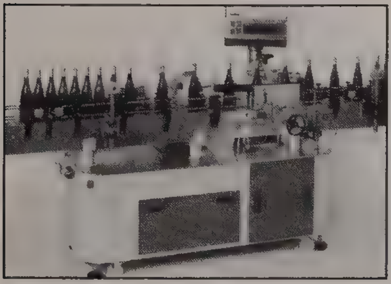
GRAPEVINE

These industry suppliers will show new products, services, and personnel at the 1995 American Society for Enology & Viticulture exhibition
June 22-23, 10AM-4PM, Oregon Convention Center, Portland, Oregon

APM, Inc. 909, 911
APM and Vetrerie Bruni of Milan, Italy have jointly formed APM Euroglas, LLC to market specialty glass containers in North America. We have expanded our line of wooden topped corks, tapered corks and a full range of colored wax. APM continues to expand in the manufacture of capsules in Benicia, CA.
441 Industrial Way, Benicia, CA 94510. tel: 800/487-7555, fax: 707/745-0371.
See our ad on page 88.

A.W.S., Inc. 504
AWS, Inc. presents a complete bottling line from pump, filter, to pressure sensitive labelers that will be on display. AWS will have staff to answer questions about, pumps, filters, destemmers, all new membrane presses, spargers, fillers, corker monoblocs, spinners, and pressure sensitive applicators.
7694 Bell Rd., Windsor, CA 95492, tel: 707/838-2812, fax: 707/838-3164.
See our ad on page 55.

Barrel Associates Intl. 515
With emphasis on superb flavors, Barrel Associates Intl. will show barrels from three manufacturers: Tonnellerie Dargaud and Jaegle French oak, Maison Louis Latour French oak and Barrel Associates Premium American oak barrels both water bent and fire bent. All styles and toast levels are available.
tel: 707/257-0714 or 800/227-5625 fax: 707/257-0742.
See our ad on page 46.


AWS

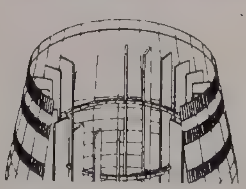
BARREL BUILDERS NAPA VALLEY

Barrel Builders 523
Marchive French barrels, Premium Hungarian oak barrels and tanks, Silicone bungs, oak chips (French and American), Small barrels, barrel shaving and repair. See and taste our new Czech barrel.
P.O. Box 268, St. Helena, CA 94574, tel: 707/942-4291, fax: 707/942-5426.
See our ad on page 74.

Blue Grass Cooperage 218
Produces American oak wine barrels of the highest quality for the greatest value. "Zero Waste." Every inch of scrapwood and every ounce of sawdust is recycled to heat our plant. The money saved is passed along to our customers. This is one way we keep the price down and the quality up.
585-Fifth Street West #211, Sonoma, Ca 95476, tel: 707/939-9790, fax: 707/939-9791.
See our ad on page 70.

The Boswell Company 1101
American and French oak barrels, upright tanks, and ovals from Tonnellerie RADOUX in Cognac and 228 liter Burgundy barrels from Tonnellerie SIRUGUE in Nuits-Saint-Georges. Wine cellar tools: Bulldog's Pup racking device, stainless steel barrel stirring rods, Boswell silicone rubber bungs, Dujardin glass wine thieves, and hose cleaning balls.
1000 Fourth St., Ste. 360, San Rafael, CA 94901, tel: 415/457-3955, fax: 415/457-0304.
See our ads on pages 59, 87.

Boswell/Tonnellerie Radoux


Custom Cooperage/Innerstave

CalPac-Caliber Packaging 604
CalPac-Caliber Packaging provides domestic wine bottles by Ball & Madera Glass. We have a complete stocking program for all standard sizes and colors. We provide stem ware for tasting rooms and tasting events throughout the United States. CalPac-Caliber imports all sizes and shapes of wine bottles from Europe.
601 B Stone Rd., Benicia, CA 94510, tel: 800-DRINK WINE, 707/747/1055, fax: 707/747/1064.

Calif. Grapevine Nursery 205
California Grapevine Nursery, Inc., supplies growers with 12 varieties of certified #1 rootstock priced from $1 and 12 varieties of certified dormant grafted vines from $2.50. All vines are hot-dipped to state specifications. Cuttings and grafting wood are also available.
1085 Galleron Rd., St. Helena, CA 94574, tel: 800/344-5688, fax: 707/963-1840.

Canton Cooperage 1021
Canton Cooperage is proud to offer the premium American oak barrel; finely crafted from air-dried white oak and slowly toasted over oak fires. The discerning winemaker can choose oak from several forest regions cut in our own mills; toast levels; heads toasted; and bordeaux, burgundy, or chateau ferre styles.
PO Box 548, Lebanon, KY 40033, tel: 800/692-9888, fax: 502/692-3998.
See our ad on page 13.

Cellulo Company 712, 714
Cellulo Company is a leading manufacturer of purification and clarification products for the wine and juice industry. Cellupore® filter sheets, Cellulo® filter fiber, Oak-Mor® granular white oak, Kolorfine® and Klear-Mor® are manufactured in Fresno, CA. The company exclusively represents Pacific Press, Novo Nordisk enzymes, Nalco colodial silica, James Vickers Isinglass, Condimenta Bitec and Red Star Yeast.
West coast office, tel: 209/485-2692 or East coast office, tel: 908/272-9400.
See our ad on page 33.

Blue Grass Cooperage

The Compleat Winemaker 633, 635
New for 1995: manual big bottle corkers with jaws in three sizes; a big bottle foil capsuling machine; a pneumatic rapid cork puller; full port ball valves for CIP; an aro air pump with tranquillizer; a SCHENK module filter; and an ASTI destemmer/crusher with variable speed and adjustable rollers.
955 Vintage Ave., St. Helena, CA 94574, tel: 707/963-9681, fax: 707/963-7739.
See our ad on page 74.

Cork Associates 914
Non-chlorinated still wine corks in the new BWC "Plus," BWC, or Natural. "SPARK" brand champagne corks by Amorim & Irmaos, S.A.
902-M Enterprise Way, Napa, CA 94558, tel: 707/224-6000; fax: 707/224-7616.
See our ad on page 46.

Cork Supply Int'l. 902
Corks...Corks...Corks! Alpha, Natura, and Traditional still wine corks, Colmated corks. Champcork ABC-1 sparkling wine corks and Futura II wine corks. Test your TCA sensitivity in the sensory evaluator at our booth.
537-F Stone Road, Benicia, CA 94510 tel: 707/746-0353, fax: 707/746-7471.
See our ad on page 48.

Custom Cooperage/Innerstave 429
INNERSTAVE for new oak flavor in depleted barrels or wooden and stainless steel tanks of all sizes. INNERSTAVE features various French or American oaks toasted to the exact specifications of the winemaker. Barrel services through CUSTOM COOPERAGE in-

Continued→

clude repair and brokering of used barrels.
24200 Arnold Dr., Sonoma, CA 95476, tel: 707/996-8781, fax: 707/996-1157.
See our ad on page 85.

DriWater, Inc.
DriWater, Inc. produces water in a gel form (not a polymer) that slowly releases water. The product is non-toxic, biodegradable and licensed by the Ca. Dept. of Food & Agriculture. The gel is activated by microorganisms found in the soil. Effective for establishing plants on hillsides or in areas with adverse soil conditions.
715-P Southpoint Blvd., Petaluma, CA 94954, tel: 800/255-8458, 707/769-5343, fax: 707/769-0335.

Duarte Nursery, Inc. 425, 427
Custom grafted grapevines and rootstock. Come by and see our Big Pot Benchgrafts, meet our Vineyard Service Team and see about year-round planting.
1555 Baldwin Rd., Hughson, CA 95326, tel: 1-800/GRAFTED, fax: 209/531-0352.
See our ad on page 3.

ENCORE/Decanter 306
Celebrating our 20th year serving the wine industry, ENCORE! offers an expanded line of new and resterilized wine bottles and wine bottle resterilization services. We will be showing our innovative wine bottle color, ESTATE GREEN, in addition to many other new products.
860 So. 19th St., Richmond, CA 94804, tel: 510/234-5670.
See our ad on page 53.

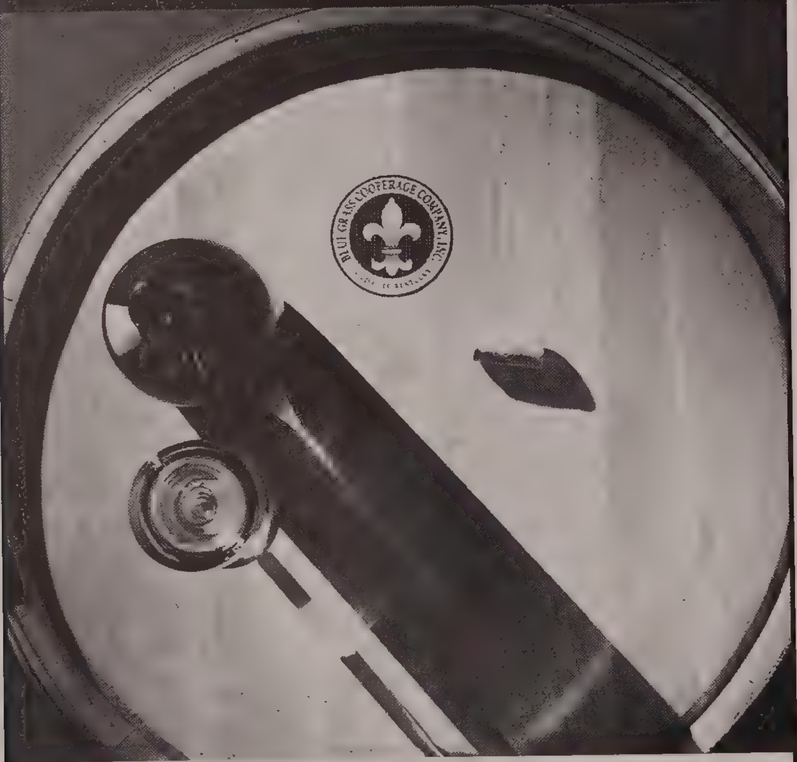
Dri-Water

EuroMachines, Inc. 219
EuroMachines, Inc. (subsidiary of Scharfenberger Company in Germany) has a branch office (sales & service) in San Jose, CA to better serve West Coast customers. Equipment available: Europress grape press, Braud grape harvesters (pulled & self propelled), Rauch grape gondolas, Willmes WP model presses, Rauch & Wottle destemmers, Kiesel progressive cavity pumps & mixers, Schneider pumps, and Guth tank mixers.
West: 1968 Hartog Dr., San Jose, CA 95131, tel: 408/452-7600, fax: 408/452-7689, Carlsen & Assoc., 5228 Aero Drive, Santa Rosa, CA 95403, tel: 707/576-0632, fax: 707/576-7689.
East: P.O. Box 843. Culpeper, VA 22701 tel: 703/825-5700, fax: 703/825-5789.
See our ads pages 19, 63.

fp Packaging, Inc. 704-710, 805-811
We represent Europe's leading manufacturers of winery equipment including Diemme, Padovan, Bertolaso, Cobert, Cavagnino & Gatti and Robino & Galandrino. Our exhibit will feature Diemme's small self-contained AR18 membrane press, Cavagnino & Gatti's CG72-T2 labeler, Robino & Galandrino's ASTRA 4 dispenser/spinner monoblock for metallic foils.
601 Airpark Road, Napa, CA 94558, tel: 707/258-3930, fax: 707/258-3935.
See our ad on pages 21, 44.

fp Portocork, Inc. 704-710, 805-811
fp Portocork, from its state-of-the-art temperature-and humidity-controlled Napa facility, provides traditional, natural and NOVA wine corks, as well as Oller champagne corks. Nova corks are recognized as the innovative leader in chlorine-free washing technology.
601 Airpark Road, Napa, CA 94558, tel: 707/258-3930, fax: 707/258-3935.
See our ad on page 68.

BLUE GRASS COOPERAGE COMPANY



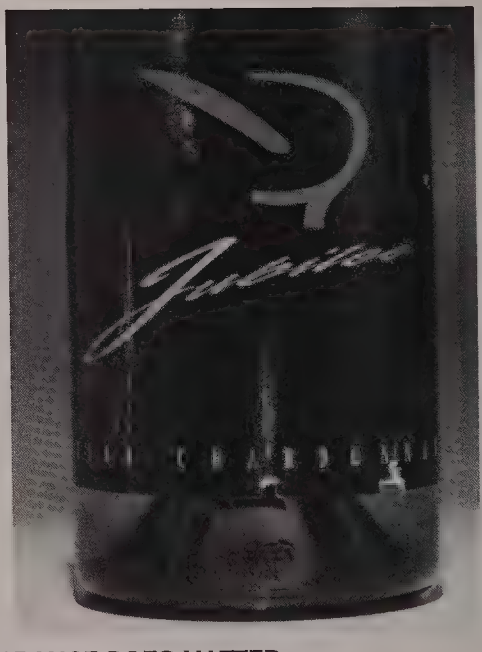
QUALITY AMERICAN
OAK WINE BARRELS

RAYMOND WILLMERS
585 Fifth Street West, #211
Sonoma, CA 95476
Tel: (707) 939-9790

MARY JANE MADDEN
P.O. Box 37210
Louisville, KY 40233
Tel: (502) 364-4550

See us at ASEV, booth 218

Don't
Get
Rubbed
the
Wrong
Way



APPEARANCE DOES MATTER.
PROTECT YOUR LABELS DURING SHIPPING.
CHOOSE WINEGUARD PROTECTIVE INNER PACKAGING.

WINEGUARD
another packaging innovation by
ROCK-TENN COMPANY
1-800-558-6984, in California 1-800-423-0357

See us at ASEV, booths 810-812

Gist Brocades 310-314

Gist-brocades manufactures unique yeast cultures such as Fermirouge™ and Fermiblanc™ Arom that contribute special flavor profiles and Fermivin® which provides quick vigorous fermentation. Rapidase® Vino and Vino Super enzymes provide rapid, distinct clarification while maintaining excellent juice yields. AR2000 enzyme was developed for wine flavor enhancement.

8720 Red Oak Blvd., Ste. 401, Charlotte, NC 28217, tel: 800/ 438-1361, fax: 704/ 527-8184.

See our ad on page 67.

Hall & Bartley

Gordon Graphics 820

Wine labels, posters, back cards, and other point-of-sale materials. All printing, foil-stamping, embossing, and aqueous coating is done in-house.

15 Digital Dr., Ignacio, CA 94949, tel: 415/883-0455.

See our ad on page 51.

Great Western Chem. 310-314

We have 34 locations throughout the western United States, Alaska, Canada and Mexico. Great Western distributes a complete line of food grade chemicals and fining agents.

For your nearest location, please call: 209/485-4150, in Calif. 1-800/350-4150.

See our ad on page 47.

Hall & Bartley 1003

Architectural design and planning of winery facilities.

4701 Old Redwood Hwy., Santa Rosa, CA 95401, tel: 707/544-1642, fax: 707/544-1646.

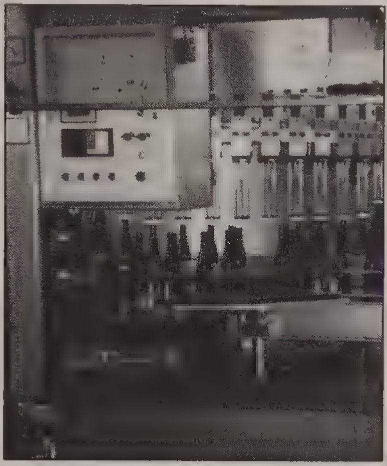
See our ad on page 78.

KHS Priority One America 1001

KHS Machines, Inc. product line includes bottling, packaging, conveying, process and filtration equipment which maintains a long tradition of quality materials and workmanship. We supply KHS filling corking, and packaging equipment, Armbruster stemmer/crushers and must pumps, KHS Orion and Zenit plate and frame filters, Spadoni DE and lees filters, Beer capsule dispensers and spinners, Priority One case palletizers, bottle combiners and conveyor.

KHS, 1350 Industrial Ave.#G, Petaluma, CA 94952, tel: 707/ 763-4844, fax: 707/763-6997.

See our ad on page 10.



KHS

KLR Machines 1103, 1201

Bucher RPZ, RPA, and RPF grape presses. Vaslin CEP grape presses and Vinimatic dejuicer/ rotary fermenters, CMMC Delta destemmer/crushers and must pumps, BECO plate and frame filters, filter sheets, and BECO-floc filter aids, Romicon crossflow wine filters, Unipektin evaporators, essence recovery units, desulphurizers and de-alcoholizers, and Sanoplast PVC and OPS heat-shrink capsules.

350 Morris St., Suite E., Sebastopol, CA 95472, tel: 707/823-2883, fax: 707/823-6954 or 47 West Steuben St., Bath, NY 14810, tel: 607/776-4193, fax: 607/ 776-9044.

See our ad on page 16.

THE COMPLETE
ALCOHOLIC BEVERAGE COMPLIANCE SERVICE

COMPLIANCE AUDITS
LABEL APPROVALS
RECORD KEEPING
VARIANCES
LICENSING

Sara Schorske
compliance specialists

VITICULTURAL AREAS
MONTHLY REPORTING
ABCS REGULATORY SOFTWARE
SHIPSHAPE AUTOMATED COMPLIANCE

1325 COLLEGE AVENUE, SANTA ROSA, CA 95404
(707) 578-9432 FAX (707) 542-8138

LALVIN

The Finest Wines Are Made With LALVIN Special Yeasts

LALVIN dry wine yeasts are isolated and selected by top enologists and researchers at renowned institutes.

It's not surprising that the finest wines are made using only the finest ingredients.

It's also not surprising that the finest winemakers use Lalvin Dry Wine Yeasts!

LALLEMAND

SCOTT LABORATORIES

2220 Pine View Way • P.O. Box 4559 • Petaluma, CA 94955-4559
707-765-6666 • Outside CA Call 800-821-7254
1845 Sandstone Manor #14 Pickering Ontario Canada L1W 3X9 • 905-839-9463

See us at ASEV, booths 407, 409

Lafitte Cork & Capsule 319
Still wine corks in all grades, sizes and washes, produced by Lafitte Cork Portugal processed at Lafitte's new Napa facility. Sparkling wine corks from "Societe Champenoise des Lieges", Capsules manufactured by Lafitte Industries, Toulouse, France include stock and multi-colored custom PVC, stock and top embossed custom Polylam, and custom tin.
45 Executive Court, Napa, CA 94558, tel: 707/258-CORK, or in CA, OR, WA, tel: 800/343-CORK.
See our ad on page 2.

Lodi-Woodbridge Winegrape Commission 318
The Commission conducts a variety of regional promotion and viticultural research activities on behalf of the 600+ local winegrape growers. The Commission's district-wide Integrated Pest Management program has enhanced the region's reputation for innovation. Wineries large and small rely on high quality varietal winegrapes from the Lodi-Woodbridge region for their California appellation wineprograms.
1420 S. Mills Ave., Ste. K, Lodi, CA 95242, tel: 209/367-4727, fax: 209/367-0737.
See our ad on page 22.

Lorane Grapevines 921
Producers of superior quality, vigorous, Oregon-grown, grafted grapevines.
80854 Territorial Rd., Eugene, OR 97405, tel: 503/942-9875, fax: 503/942-9867.

McBrady Engineering 806
A new development for the McBrady Engineering's Orbit Bottle Rinser/Gas Injector is steam rinsing of the bottles for a more sterile filling. The Orbit rinser provides a steam rinse from 10:00 to 2:00 followed by nitrogen injection from 2:00 to 5:00 through the individual stainless steel tubes inserted into each bottle. A separate electric steam generator is provided to supply the steam for the rinse.
P.O. Box 2549, Joliet, IL 60436, tel: 815/744-8900, fax: 815/ 744-8901.

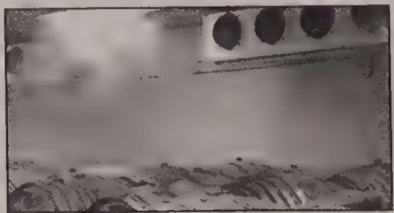
McBrady Engineering

Mee Industries, Inc.
Good humidification reduces wine loss caused by evaporation. The Mee Fog System is a high pressure water atomizing system producing fog droplets so small they remain suspended until they fully evaporate. Mee Fog helps to maintain a humid "cave like" atmosphere in the cellar without wetting or high energy costs.
4443 N. Rowland Ave., El Monte, CA 91731, tel: 800/REAL FOG, 818/350-4180, fax: 818/350-4196.

Pickering Winery Supply 521
Pickering will be offering Chardonnay to taste from their Vercu & Treuil French barrels. They will also be offering tastes of wines before and after treatment with the new fining agent, Vinpur Special. Gultig's impressive resin-coated corks and tin, polylam, and heat-shrink capsules will be on display. Technical questions on O'Sullivan winery coatings will be addressed.
888 Post Street, San Francisco, CA 94109, tel: 415/ 474-1588, fax: 415/474-1617.
See our ad on page 84.

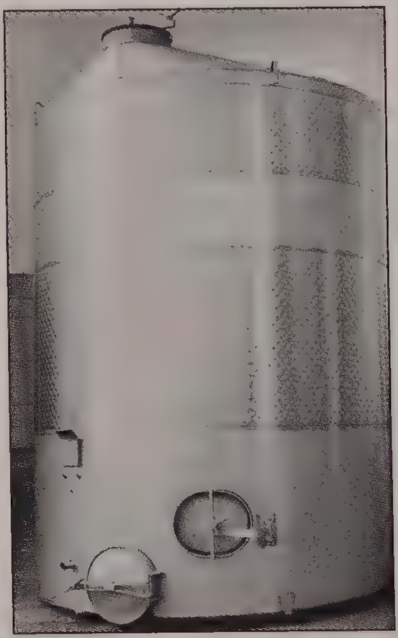
R. Prulho S.A. 633, 634
Designer and builder, for more than two generations, of the world reknown copper alambic pot still, including a full range of support equipment. Alambic pot still size ranging from 20 to 10,000 liters.
P.O. Box 10234, Napa, CA 94581, tel: 707/255-2031, fax: 707/253-8234.

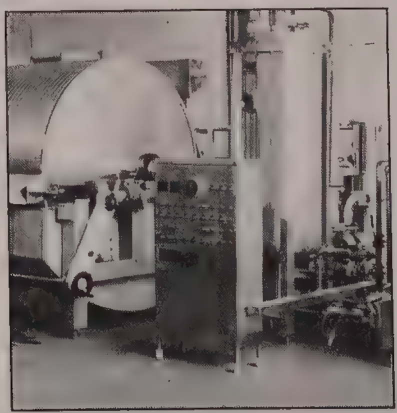
Ramondin, U.S.A, Inc. 304
Top quality tin foils for still wines and polylaminate foils for champagne. Total service for stock capsules in ten colors and two sizes, all available to be shipped the same day.
P.O. Box 2266, Napa, CA 94558, tel: 707/944-2277, fax: 707/257-1408.
See our ad on page 56.


Mee Industries

RLS Equipment 209
RLS Equipment has been serving the industry for over 30 years. Our product line includes Amos stemmer/crushers & pumps, Kiesel pumps & mixers, Willmes & Pera presses, Strassburger filters, s/s fittings, valves, corks and capsules and used equipment. The Amos ADS 531 Stemmer/crusher and AMP 830 pump will be on display.
PO Box 282, Egg Harbor, NJ 08215, tel: 609/965-0074, West coast: tel: 800/527-0197, fax: 609/ 965-2509.
See our ad on page 47.

Refrigeration Technology 302
RTI introduces the Super Stat Thermostat. It has high-low alarms, heat-cool mode, min./ max. temperature memory and an audible alarm. It has a computer option with which each Super Stat can communicate with a P.C. Software is available for monitoring, graphics, alarm, and modem functions.
595 Portal Street, Cotati, CA 94931, tel: 707/792-1934, fax: 707/ 792-1417.


Santa Rosa Stainless Steel


Scott Laboratories

Rock-Tenn 810-812
Rock-Tenn Company is North America's largest manufacturer of 100% recycled chipboard dividers for shipping cases. Partitions made of WineGuard™ material offer superior resistance to label abrasion, scuffing and ink transfer during case packing, distribution and warehousing. Other grades of material are available and all specifications are custom designed to meet individual package requirements.
504 Thrasher St., Norcross, GA 30071 tel: 800/558-6984, fax: 404/ 368-7651.
See our ad on page 70.

Ruszel Woodworks 905, 907
Wood boxes and crates. Also, designers and manufacturers of custom point-of-purchase display racks.
2980 Bayshore Rd., Benicia, CA 94510, tel: 707/745-6979, fax: 707/ 745-2793
See our ad on page 81.

Santa Rosa Stainless Steel 718
Stainless steel storage and fermentation tanks. Dejuicing tanks and systems, aluminum catwalks, portable storage tanks, stock fermenting tanks.
1400 Airport Blvd., Santa Rosa, CA 95402, tel: 707/544-7777, fax: 707/544-6316.
See our ad on page 66.

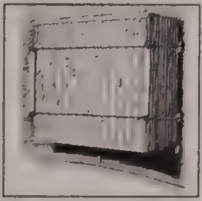
Scott Laboratories, Inc. 407, 409
Packaging supplies including new cork treatments and new materials for heat shrink capsules. Cellar and processing aids including Lalvin fermentation supplies, Rohm enzymes and Seitz filter media. Process equipment including Velo filters, Rauch de-stemmer/crushers, Manzini pumps, and Willmes presses.
P.O. Box 4559, Petaluma, CA 94955-4559, tel: 707/765-6666, fax: 707/ 765-6674.
See our ads on pages 35, 51.

Seguin Moreau USA, Inc. 726
New Napa cooperage! French and American oak barrels, vats and tanks. Barrels available in Bordeaux or Burgundy shape, export or chateau thickness. Toasted heads and five levels of toast available. Ultra-premium silicone barrel bungs. Call us for information on barrels, tours of the cooperage or repair service at our new location.
151 Camino Dorado, Napa, CA

94558, tel: 707/252-3408, fax: 707/252-0319.
See our ad on page 41.

Sonoma Grapevines 804
The Sonoma Grapevines, Inc., team will be on hand to report on a record year for orders and grafts. Get the latest information on the hottest clones, the hottest varieties, and the hottest rootstocks plus the race to plant Chardonnay and Merlot as well as the Rhones, Italians, and Dijons.
1919 Dennis Lane, Santa Rosa, CA 95403, tel: 707/542-5510, fax: 707/542-4801; 13011 So. Jameson Rd., Burrel, CA 93656, tel: 209/866-5408, fax: 209/866-0305.
See our ad on page 78.

StaVin Inc. 923, 925
Producing modular systems and introduction of Center of France air-dried, fire-toasted French oak to wines. StaVin's tank systems and new infusion tubes provide versatility that offer cost-effective alternatives to traditionally coopered French oak barrels. We are the sole U.S. distributors for the Tonnellerie Sansaud barrel.
P.O. Box 1693, Sausalito, CA 94966, tel: 415/331-7849. fax: 415/331-0516.
See our ad on page 14.


StaVin

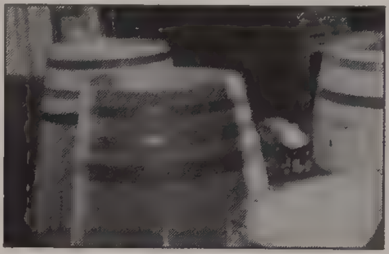
Stefanich/Tonn. Mercier 415
West Coast agent for *Tonnellerie Mercier*, exhibiting French oak cooperage; Bordeaux Export, Bordeaux Chateau, Chateau Ferre, Burgundy Export, and Burgundy Traditional barrels using the finest French oak of Allier, Nevers, Vosges, Troncais, Limousin. Also exhibiting STEFANICH stainless steel fittings for upright tanks and vats.
87 Rockaway Ave. San Francisco, CA 94127-1029, tel: 415/665-1885, fax: 415/665-1883.
See our ad on page 81.

Sunridge Nursery 303, 401
Sunridge Nursery has been in the business of producing quality grape nursery stock for 25 years. We specialize in certified rootstock rootings and benchgrafts which are all produced in a phylloxera-free region. 20 rootstocks and 50+ varieties and clonal selections are offered. Also, free delivery and viticultural field consultation within California.
441 Vineland Rd., Bakersfield, CA 93307, tel: 805/363-VINE, fax: 805/366-4251
See our ad on page 61.

Supremecorq 328
Synthetic bottle closures made of a high-grade thermoplastic elastomer. Available in a variety of custom colors providing for unique packaging opportunities. Supremecorqs are 100% recyclable and meet FDA regulations.
19039 62nd Ave. So., Kent, WA 98032, tel: 206/656-4160, 707/254-8298, fax: 206/656-4169.

T-Systems Intl. 913
T-Systems International offers a drip irrigation tape tough enough for permanent crops. Growers who install TSX Tree & Vineyard drip tape can expect to pay up to 50% less on their initial investment compared to conventional drip hose or micro-sprinkler systems. Using T-Tape TSX can also lower energy and pumping costs.
7545 Carroll Road, San Diego, CA 92121, tel: 800/765-1860, fax: 619/578-2344

Tonnellerie Francaise 818, 919
Manufacturing American oak and French oak cooperage in the finest French tradition. Air-dried wood, bent and toasted over open wood fires in Bordeaux and Burgundy styles. Importing French oak cooperage manufactured in Bordeaux and Burgundy – traditional or transport from Tonnellerie Ludonnaise (Nadalie) and Tonnellerie Remond. Hand-crafted to your specifications.
P.O. Box 798, Calistoga, CA 94515, tel: 707/942-9301, fax: 707/942-5037.
See our ad on page 5.


Tonnellerie Francaise

Vinquiry/Enoferm 202
Active-dry yeast strains selected from around the world for specific winemaking properties. Vitamins and malolactic nutrients. Distributed in the U.S. and Canada by Vinquiry. Enological services — analysis, consultation, problem solving. Wine laboratory supplies. Malolactic cultures — MCW strain of Leuconostoc oenos.
16003 Healdsburg Ave., Healdsburg, CA 95448, tel: 707/433-8869, fax: 707/433-2927.
See our ad on pages 59, 60.

Vintage Nurseries 912
Vintage Nurseries specializes in the production of field-grown dormant benchgrafts, starting at $2.50. Also offered is a full range of nursery products and services for the grape industry, including green-grafting, benchgrafts, dormant rootstock rootings, own-rooted grapevines and cuttings. Select from approximately 200 different rootstocks for a wide

Continued→

Key Industrial Associates

SUPPLIES & EQUIPMENT FOR THE WINE INDUSTRY

- Tri-Clover Pumps, Valves & Fittings
- Specialty Fittings
- Definox Valves
- Strahman Valves
- Anderson Instruments
- Rubbermaid Products
- PVC & Tygon Hose
- MGT Rubber Hose
- Hose Fittings
- Brushes
- Barrel and Tank Washers

"Personalized Service"

997 Enterprise Way Napa, CA 94558 (707) 252-0312

Steam Cleaner

FOR
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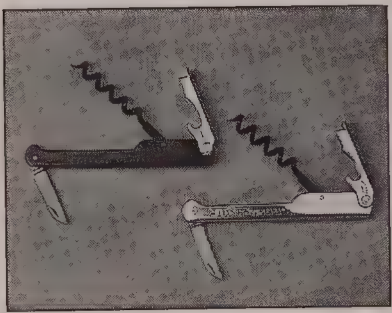
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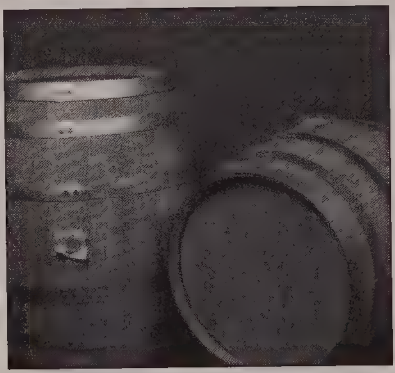
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Successful tasting room

Continued from page 67

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Mark Kendziorek is founder/owner of Tasting Room Associates, a consulting firm established to assist wineries with all aspects of tasting room and retail operation (tel: 206/378-6344).

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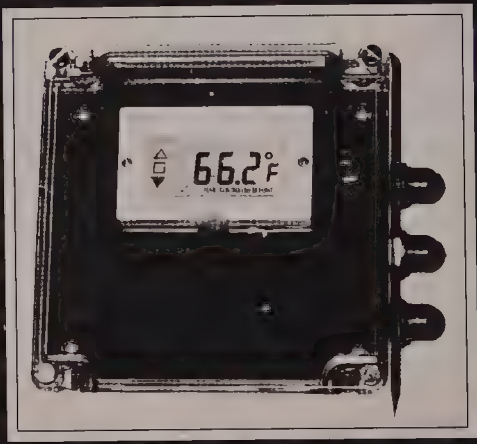
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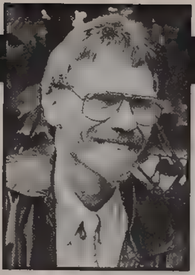

by Dr. Richard Smart

Mechanization and labor in vineyards

A European client recently explained to me that his primary requirement was to reduce vineyard labor and hence costs. I asked "What is your labor input?" and he replied "About 190 hours/hectare" (per annum, about 80 hours/acre per year).

I was reminded of this exchange at a field day discussion in Napa Valley recently, when I asked a group of California growers and winemakers the same question. No one had an immediate answer, although one person was able to calculate the cost based on annual wages paid. I stated that part of the reason why North Coast viticulture was expensive in global terms was the relatively high labor input.

It will likely therefore be of interest to readers to learn of some countries where vineyard mechanization has reduced labor costs. The following examples are from Italy and Australia, where such research work and/or commercial application is very advanced.

The Italian experience

The Italian experience in vineyard mechanization has recently been summarized by Professor Cesare Intrieri of Bologna University. Italy has one of the largest vineyard areas in the world; in 1970 it was 3.5 million acres (1.4 million hectares) but it was reduced to 2.4 million acres by 1990.

The majority of the vineyards are small, with 80% less than one hectare (2.5 acres), and 60% are on hillsides. About ⅓ of the vineyards are on the plains, typically with very fertile soils and moderate climates (Winkler zones I, II, and III).

The vineyards are traditionally trained to hedgerow systems, like vertical shoot positioning, but with less strict shoot placement. The foliage wires are fixed, though often loose, and the shoots are not always tightly trimmed. Posts are often tall, over six feet.

The labor input into these traditional vineyards is around 150 hours/acre (380 hrs/ha), with hand harvesting (60 hrs/acre) and hand pruning (35 hrs/acre in winter, and 15 hrs/acre in summer) the major labor inputs.

Early attempts to mechanize the harvest in the 1970s ran into problems. One approach was to convert vineyards to the Geneva Double Curtain (GDC) system and use the over-row vertical impact machine. Interestingly, both were developed at Cornell University for the New York wine industry in the 1960s. Despite improved yields and quality with the GDC, and excellent machine harvester performance, vineyard conversions were slow, and machine accessibility on small properties and hillsides was a problem.

Over-row harvesters fitted with horizontal slappers were also introduced from California and Europe, but these also encountered problems with tall posts and dense canopies.

The GDC system was found to have advantages in many regions of Italy, with higher yields and improved quality. Even without mechanization, labor inputs were reduced to 130 hrs/acre. These improvements were considerable due to good sunlight exposure of the bunches and leaves with this system, as the fruit zone is at the top of the canopy. An added advantage is the devigorization achieved with downward pointing shoots.

Some of the machinery problems were overcome by developing a smaller harvester as a half-row unit, which could be attached to a tractor. Use of mechanical harvesting reduced the total annual labor input to less than half, to only 60 hrs/acre.

An obvious next step was to mechanize pruning, both in winter and summer. A simple machine was developed with three adjustable cutter bars, and its application reduced the total labor input to about 30 hrs/acre per year, of which eight hours were for shoot positioning in summer. New developments of movable foliage wires aim to reduce this cost even further.

The GDC system is finding increased acceptance in Italy, with 8,000 acres established by 1993. However, it is still only 2% of the vineyard area. Recent developments are to modify the GDC to a single curtain, and to develop machines with interchangable harvester, pruning, and spraying heads.

The Australian experience

Mechanical harvesters were introduced into Australia in the 1970s and immediately began to be widely used. There were three obvious advantages: cost saving, overcoming labor problems and shortages, and, more recently, allowing the benefit of cooler fruit harvested at night. It is estimated that more than 90% of Australia's winegrape crop is mechanically harvested.

In the mid 1970s, research and commercial experimentation began with mechanical pruning, which in turn led to development of minimal pruning systems in the early 1980s. These technologies have been rapidly taken up in Australia, and it is now estimated that some 60% of Australia's vineyards (about 95,000 acres of the total 160,000 acres) are either mechanically or minimally pruned. With such pruning systems, there is a minimal amount of labor input.

Mechanical pruning is normally done with tractor-mounted circular saws, and there is little or no subsequent bud thinning by hand. With minimal pruning, there is almost no pruning as the name implies; sometimes, however, the vines may be "skirted" by machine.

This winter-pruning practice contrasts greatly with that of California, as much in bud numbers retained as in the degree of mechanization. Even vigorous vines in California can be pruned to only a few tens of buds, whereas similar vines in Australia might be pruned to several hundreds. The vine has the ability to compensate for large difference in bud numbers, and, surprisingly, the yields are not as different as one might imagine.

It is often claimed that the high degree of mechanization is giving Australia a competitive advantage in the world wine trade. Certainly, mechanical and minimal pruning and harvesting are widely used, even in premium quality cool areas like Coonawarra. In fact, some would say (myself included) that it seems paradoxical to use essentially bulk wine grape growing techniques like minimal and mechanical pruning in such a premium quality area.

Commercial experience has shown a dramatic benefit of these procedures on production costs, especially for pruning. For example, 1991 costs for hand-pruning were equivalent to $160-$1,060USD per acre (depending on vigor and pruning method), while mechanical pruning costs were $25-$100USD per acre, and minimal pruning $10-$30USD per acre.

What are the effects of these practices on yield and quality? Generally, the yields are similar or higher with mechanical/minimal pruning, and the quality would appear similar. Admittedly this comparison is often being made with hand-pruned vines, which are also pruned quite lightly (at least by California standards).

In the author's view, both of these types of canopies are typically dense and shaded, so it is not surprising that quality differences being found in the comparisons are not great. It is only very recently that comparisons are being made with more open canopies, produced by improved trellis systems.

There are some large scale Australian commercial vineyards being farmed with a **total** labor input of 20 hrs/acre (50 hrs/ha). This is a very low cost by international comparison. With continued vineyard expansion to meet export wine markets, questions are being asked about whether future vineyard plantings, especially in cooler, premium areas, will follow this trend.

Some would argue yes. Others, including the author, would suggest that labor cost minimization does not necessarily maximize vineyard profit. For example, it is possible to incorporate mechanical pre-pruning with some manual follow-up which allows for control of bud number; this total job can be done for around 10 man hrs/acre. Might that not be preferable to doing the job totally mechanically, for a labor cost of two hrs/acre, but with no control over bud number?

The situation in California

Don Luvisi of University of California extension estimated in 1993 that of California's 325,000 acres of winegrapes, about 40%-50% are mechanically harvested. Mechanical pre-pruing is used on only 3%-5% of the acreage. He further estimates that 6,000-10,000 acres are mechanically-pruned, with minimal hand follow-up, and up to 4,000 acres are minimally pruned, mostly on a trial basis. Luvisi believes that part of the reason for a relatively low uptake of mechanization is because of lack of research in California.

Conclusions

There seems little doubt that mechanical harvesting will be an important feature of vineyards of the future. Mechanized winter pruning will also become more important, but whether the current tendencies towards total mechanization and losing control of bud number will be sustainable remains to be seen.

There are now commercial vineyards being farmed in Australia with only 20 hours labor input per acre per year. What is the cost for your vineyard? ■

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by R. Corbin Houchins

Distribution law update

The law is a moving target. The well-known gray line between permissible and impermissible seldom shifts drastically in a short time, but it writhes continuously.

Changes that affect day-to-day operations, such as completing government forms, are pretty easy to follow. Most difficulties arise from behind-the-scenes movement in the meaning of vaguely-worded rules that govern business conduct but do not come to management's attention until a problem arises.

One of the most dynamic areas is trade regulation. Growers and wineries need to keep current, not only to avert unintended illegality, but also to pick up on potential advantages. Periodic legal review of sales and marketing programs is good both for compliance policy and for giving your enterprise all the room it is entitled to in carrying out its business objectives.

This column suggests topics for a checklist for use in a compliance update with your legal advisors. The over-view also gives me an opportunity to highlight some previously noted pitfalls that packaged goods companies continue to fall into.

Knock-off packaging

One of the major stories in packaged goods marketing is the shift from famous name brand dominance toward house brands and other private labels. For many consumer goods there is a market leader with a distinctive package. Look at supermarket shelves these days and you will see increasing numbers of products with brand names that clearly do not infringe but whose packages closely resemble the leading brand package in overall look and feel.

Wine may not have a clear industry-wide leading brand, but there are famous packages that set styles in label design. Several years ago, the owners of the Romanée-Conti label stopped a California winery from using a similar red and black border on its semi-generic red wine.

Trademark law has recently become friendlier to protection of package appearance, which is known as "trade dress." Wineries should look into registering their distinctive trade dress as a trademark, thereby obtaining the powerful protection of the federal trademark laws for a relatively small investment.

Price promoting

More day-to-day problems occur with price differentials than with any other legal issue in pricing.

The federal Robinson-Patman Act and equivalent laws in many states introduce complexities whenever two distributors who may compete with one another are charged different prices. Contrary to two widely held misconceptions, at both the winery-to-distributor and distributor-to-retailer levels a supplier's standard quantity discount usually does *not* justify a lower price to the higher volume competing buyer, and giving a discriminatory discount to meet the price of your competitor does *not* establish that your price is legal.

The only sensible course is to require the person in charge of the legal compliance function at the winery to approve all changes in price or credit terms and all deviations from a uniform price and credit policy for all buyers. The winery's legal advisor can draft a form that will contain sufficient information to make a go or no-go decision based on legal exposure. Anyone proposing the price change or deviation would then complete and submit the form to the compliance person, who would consult counsel in gray areas.

Discrimination in advertising allowances also raises problems. Packaged goods suppliers should read the Guides for Advertising Allowances and Other Merchandising Payments and Services, commonly known as the "Fred Meyer Guides," adopted by the Federal Trade Commission (FTC). They can be found at your local library in part 240 of Volume 16 of the Code of Federal Regulations.

Don't count, however, on compliance with government guidelines to eliminate legal risks. Private plaintiffs are a major source of antitrust litigation notably less predictable than federal or state prosecutors. The FTC recently dropped a Robinson-Patman investigation of a major retailer, but the same retailer was hit with a jury verdict in a private case brought under the Arkansas "little Robinson-Patman" statute.

Passing price promotions through to the retailer

Don't be led astray by chain buyers into coordinating distributor prices.

The temptation is great with promotional prices that will get your brand into a chain-wide ad. The chain wants a uniform purchase price at all store locations, to make the advertised shelf price produce the same margin in all stores. If the chain buys from more than one distributor, somebody is going to talk to someone about your distributor's resale prices. The problem arrives at the winery when one of your distributors pockets all or part of your price promotion and will cause you to lose the ad exposure by defeating the chain's aim of uniformity.

Legal ramifications are serious. ***Both*** agreements among competing wholesalers ***and*** agreements between a winery and the wholesaler that affect the price charged by the wholesaler are criminal offenses under federal law and the law of most states. They also expose perpetrators to severe civil liability, including treble damages.

On the other hand, common business sense dictates that a winery should do all it can within those shifting boundaries of the legally permissible to get the benefits of a price promotion to move downstream. I'll just scratch the surface of the issues involved in steering around the rocks, hoping to convince you to talk to your legal advisor about them.

First, the natural tendency is to tell the distributor, "I'll pay you a depletion allowance of $2 per case for all cases sold in July, but only if you reduce your PTR[1] by $2." Legal analysis of that kind of promotion turns out to be very complex under recent court decisions, so let's look at a simpler hypothetical to illustrate the basic principles.

Most people would think it more illegal if the winery said to the wholesaler, "Reduce your PTR by $2 or I'll terminate." The opposite is true. Antitrust law does not change the basic principle that a seller may choose its customers and may (except to create or preserve a monopoly or in violation of state franchise legislation) refuse to deal with anyone who does not comply with previously announced resale price requirements.

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[1] "Price to retailer." Package goods marketers seem to adore military-speak. Abbreviations like SKU (stock keeping unit) and AOM (all other markets, *i.e.*, the mom and pop stores) abound. Worse, field sales people put Desert Storm terminology like "annihilate the competition" in memos that end up as documentary evidence in distribution litigation.

But wait. Behind the basic principle, which is called the "Colgate doctrine" after a 1919 antitrust case, lies a zinger. If the distributor then says "okay," *that* would be an *agreement* affecting resale prices. Seeking, entering into or attempting to enforce the agreement is a felony.

Colgate is still the law, but practical difficulties in using it are tremendous. There are companies with Colgate-based resale price maintenance programs. Recent cases show that they almost always go awry because field sales people simply cannot keep up the artificial distinction between a policy enforced by unilateral termination and an agreement that the distributor will follow the policy.

Whether the Colgate doctrine could work in an industry with few distributors and many brands is an interesting question. Traditionally, wineries delegated much of their field marketing to their distributors. The present trend is for distributors simply to distribute, which might make a take-it-or-good-bye price policy more feasible. However, threats of termination followed by the distributor's acquiescence in resale prices and the winery's continuing to supply are probably illegal, so you have to cut off the distributor who does not participate in a price promotion. That is probably too restrictive a straight-jacket for wine marketing.

The only safe practice is to leave the wholesaler free to set its own resale prices and to say so clearly in the distribution agreement. Thus, the question becomes how to induce the wholesaler to exercise its independent judgment in a manner consistent with the winery's marketing objective, *without* creating an agreement. That brings us back to the complicated question noted above: Can you pay a depletion allowance, conditioned on the recipient's resale price, leaving the wholesaler free to decide whether or not to charge the desired PTR?

There is no simple answer. Guidance depends on the details of the individual promotion, the aggressiveness of management and where the promotion takes place. The results may be more predictable if the payment in question is part of an advertising support program rather than a mere retroactive price reduction. What the government regulators call "price-restrictive cooperative advertising programs" have a checkered history, but at least there are court decisions upholding them under certain circumstances.

In 1990, Guide 7 of the Fred Meyer Guides was amended so

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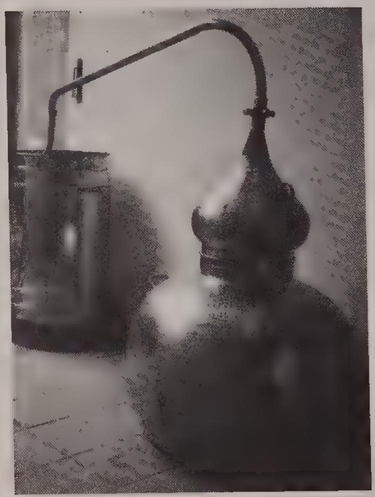

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as no longer to prohibit price-conditioned advertising programs. However, the National Association of Attorneys General did not drop opposition to price conditions from *its* guidelines, so you could follow the Fred Meyer Guides and still be in trouble from the state law enforcement agency. In general, state attorneys general are more restrictive in resale price maintenance issues than federal enforcers. There are also private plaintiffs, notably terminated distributors, to worry about.

Your legal advisor should review all conditional price promotions (whether the condition is spelled out or not) and all changes to previously approved programs. In some cases the program should not be put into effect until your attorney has cleared it with the local attorney general.

Wholesalers

Creating, modifying and ending supplier-wholesaler relationships is a sprawling topic we have visited from time to time in this column. For present purposes, here are a couple of caveats that bear repeating:

It is customary in our industry, indeed compelled by law in several states, to allocate exclusive sales territories to wholesalers. Neither the familiarity of the practice nor the legal compulsion means that all territorial allocations are legal.

Don't let distributors involve you in a squabble that is "cured" by a horizontal allocation of territories. Recently, courts have been divided over whether a manufacturer could lawfully adopt territorial allocations that would be entirely legal if initiated by the manufacturer, if before adoption the territorial map had been suggested by the wholesalers involved.

Any plan to terminate a supplier-wholesaler relationship with a distributor that other distributors in the market complain about has to be looked at carefully because it could be construed as a horizontal agreement to eliminate that wholesaler as a competitor.

Export

Probably the largest change in my work over the past few years is the increasing emphasis on international trade.

It's not that managing the legal risks of export is all that complex in itself. The difficulties arise mainly because practical business issues in disparate areas interrelate in unfamiliar ways. The list of items to bring up with your legal advisor includes labeling requirements, certifications needed for customs clearance, and other areas directed to the product itself, such as overseas restrictions on food additives and processing aids, plus country-by-country trademark (and possibly other intellectual property) protection.

Some items can be dealt with adequately from the manufacturing site. Some require input of the company that will import and distribute the goods in the foreign country. Starting a distribution relationship requires advance legal planning, so laying the groundwork in chosen markets has to appear early in the count-down for export sales.

In my view, the best method is for your legal advisor to develop a working relationship with an attorney in the export market before you get serious with the distributor. Laws affecting supply contracts and brand representation can have surprising effects in foreign jurisdictions. You need to know how the legal land lies before you shake hands. ■

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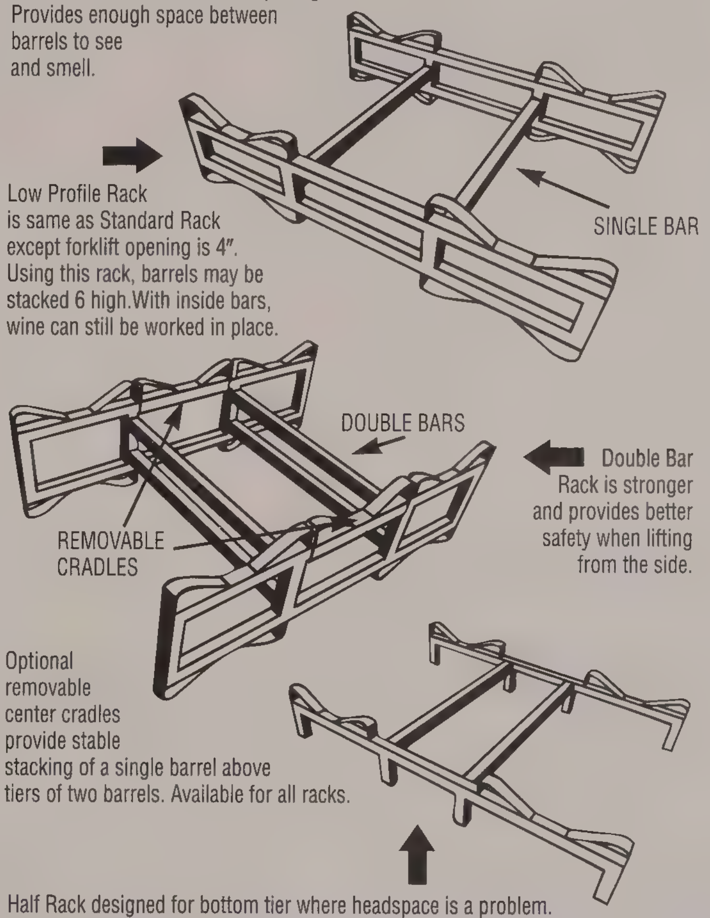

Standard Rack has 7″ forklift opening. Provides enough space between barrels to see and smell.

Low Profile Rack is same as Standard Rack except forklift opening is 4″. Using this rack, barrels may be stacked 6 high. With inside bars, wine can still be worked in place.

Double Bar Rack is stronger and provides better safety when lifting from the side.

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Half Rack designed for bottom tier where headspace is a problem. It has the unique feature of being pallet-jackable from all 4 directions.

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WINERY WATER & WASTE

by D.R. Storm, PhD, PE

One-on-one with highway trash

Our winery's recent "adoption" of two miles of I-505 has been an exciting experience right from the start, and it benefits our business as well as our community. California is not the only one of 50 states that has public participation in cleaning unsightly freeways. Ralph Carhart, California's Adopt-a-Highway Coordinator, believes that there are now 48 states with similar programs, with some California counties and municipalities also embracing the successful street and road cleaning methods.[1]

We have discovered that assembling a willing crew of trash collectors is the principal problem even though elaborate food and beverage incentives are offered. CALTRANS provides safety equipment consisting of international orange hard hats, vests, trash bags, and protective leather gloves.

A safety lecture for the responsible freeway adopter is required before any highway cleaning can be undertaken. For example, the safety rules clearly state that knives, guns, and hypodermic needles are to be left on the roadside where they lie, while blown tire segments (called alligators) are kept separate from glass, metal, and cellulose waste for safe disposal. Disposable diapers and fast food outlet containers fill about 50% of all trash bags in our two-mile sector. Carhart provided some rather impressive statistics for the state's freeway cleaning program:[1]

- *Approximately 285,000 cubic yards of roadside trash are removed from California's freeway system annually.*
- *50% is harvested by the Adopt-a-Highway groups with 40% picked up by minimum security prison labor; the remaining 10% is accomplished by CALTRANS workers.*
- *The Adopt-a-Highway program now has 3,500 separate groups covering some 7,000 miles of freeway (14,000 miles, if you count the roadside shoulder distance on either side of a four-, six-, or eight-lane freeway).*

In California, a freeway sign announcing the adopter is paid for by the program. Along segments of the federal interstate road system where signs are prohibited, the Adopt-a-Freeway signage is, for many wineries, the only way that the passing throng of potential wine tasters and purchasers can be informed of their existence. (Traffic count records for our sector of I-505 showed 36,000 cars/day in 1993.) Anyone who has checked prices on approved commercial highway signs will happily maintain a section of freeway and forego the sky-high $3,000 to $5,000 monthly commercial sign rental fee.

Something new in living sound walls and odor barriers

Previous **PWV** Winery Water & Waste columns have explored the use of landscape barriers as one of the passive weapons available to divert and promote vertical dilution of nuisance wastewater and odors (Winery Odors: Achieving 24-hour Protection, Parts I and II, Vol. VI, No. 4 and Vol. VI, No. 5).

While trees and other shrubs used for sound/odor walls haven't changed since 1985, some innovative and environmentally-correct ideas have emerged since that mid-1980s era, that deserve serious consideration for planning landscape screens for a number of useful winery purposes.

Description of the system

Good recycling requires that the recycler first remove appropriate post-consumer waste from the ever-shrinking landfill disposal sites and allow creative industries to turn the waste products into useful items for society. But the recycling loop isn't closed until the recycler puts the newly created item in the second generation of consumption.

Wineries certainly have this opportunity in abundance with recycled wine bottles, fiberboard cartons, plastic and pressed paper wine shippers, and so on.

Now there's a structural wall system to add to the list. An earth-filled wall system made from recycled plastic offers a great opportunity to put post-consumer plastic to work on a large scale. The structural concept is relatively simple and incorporates many of the ideas of "reinforced earth" walls (concrete blocks and rammed earth), that were introduced in the 1970s and were used to retain and to provide pockets of soil for the growth of appropriate vegetation.

The plant cover always gave a visual softening to these finished structures not seen in conventional concrete retaining walls. RecyWall, as it is called by its producer,[2] consists of two curtains of plastic planks and transverse plastic vertical supports or connectors. The finished wall looks much like the louvers of a window covering in the part-open position (inside leading edge up).

The center interior cell (or core) created by the two-plank curtains is backfilled with compacted soil (about ⅔ of the total volume) and the remaining outside shell, is covered with a rich topsoil and compost blend suitable for sustaining plant growth. The end view and side elevation, in Figure 1 show the very clever mid-western "corn crib" configuration of the horizontal planks that retain the compost/soil.

A simple irrigation system can be provided to deliver moisture to the plants chosen for the finished wall during hot, dry summers.

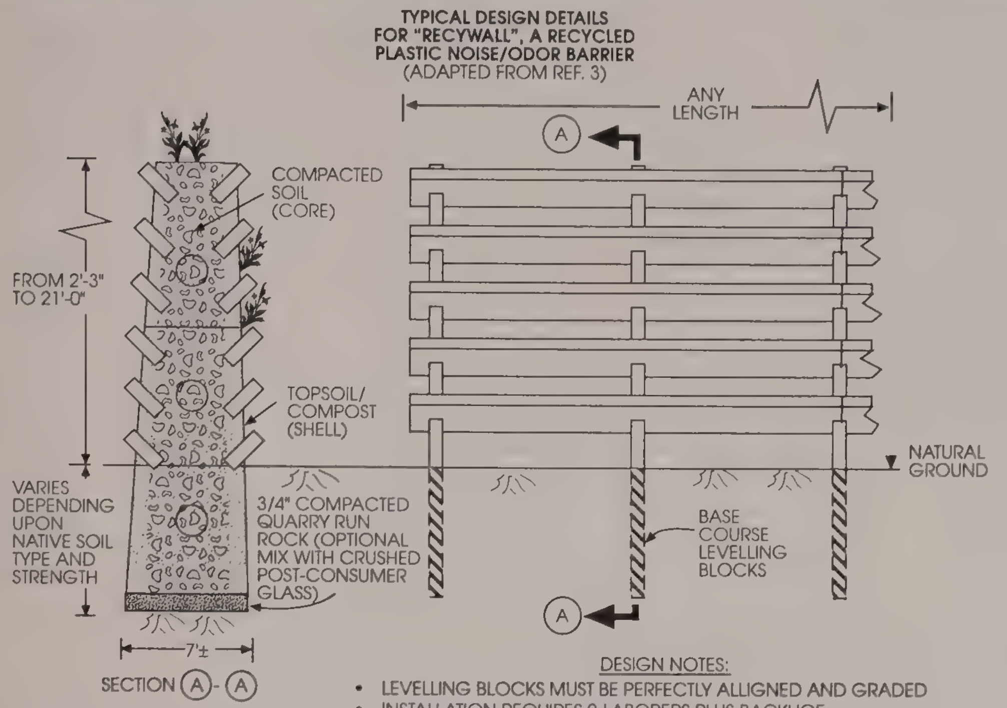
Potential of recycled plastic earth-filled walls for wineries

The manufacturer offers the wall as a sound barrier, but with a safe structural height of 21 feet, the finished wall would serve equally as well as an inexpensive visual barrier, disguising the winery pomace pile, equipment maintenance area, or pallet storage site, all of which are better hidden from visitors sight.

The aerodynamic assets of this type of wall include the vertical dilution of ground-hugging waste treatment system or sewage pump station odors that often occur on dead-air days. Their value as windbreaks should not be overlooked either, as prototype tests performed by third-party specialists reported that the wall can resist a 0.18 g seismic force and 100 mph wind.[3]

Asked if the walls were a climbing hazard for children, the

Figure I


TYPICAL DESIGN DETAILS
FOR "RECYWALL", A RECYCLED
PLASTIC NOISE/ODOR BARRIER
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COMPACTED SOIL (CORE)
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SECTION A - A

DESIGN NOTES:

- LEVELLING BLOCKS MUST BE PERFECTLY ALLIGNED AND GRADED
- INSTALLATION REQUIRES 2-LABORERS PLUS BACKHOE
- SEISMICALLY SAFE FOR 0.18g. HORIZ. ACCELERATION AND 100 mph WIND LOADING(3).

manufacturer (maybe tongue-in-cheek) responded: "Plant blackberries or roses in the wall to discourage young mountaineers." If you aren't convinced by now that these walls might be useful, consider them from the recycling angle.

- One linear foot of 12-ft. high RecyWall uses 830 lbs of plastic waste; 8,600 lbs of compost and soil mix; and 220 lbs of crushed post-consumer glass (mixed with drain rock for the base filter). ■

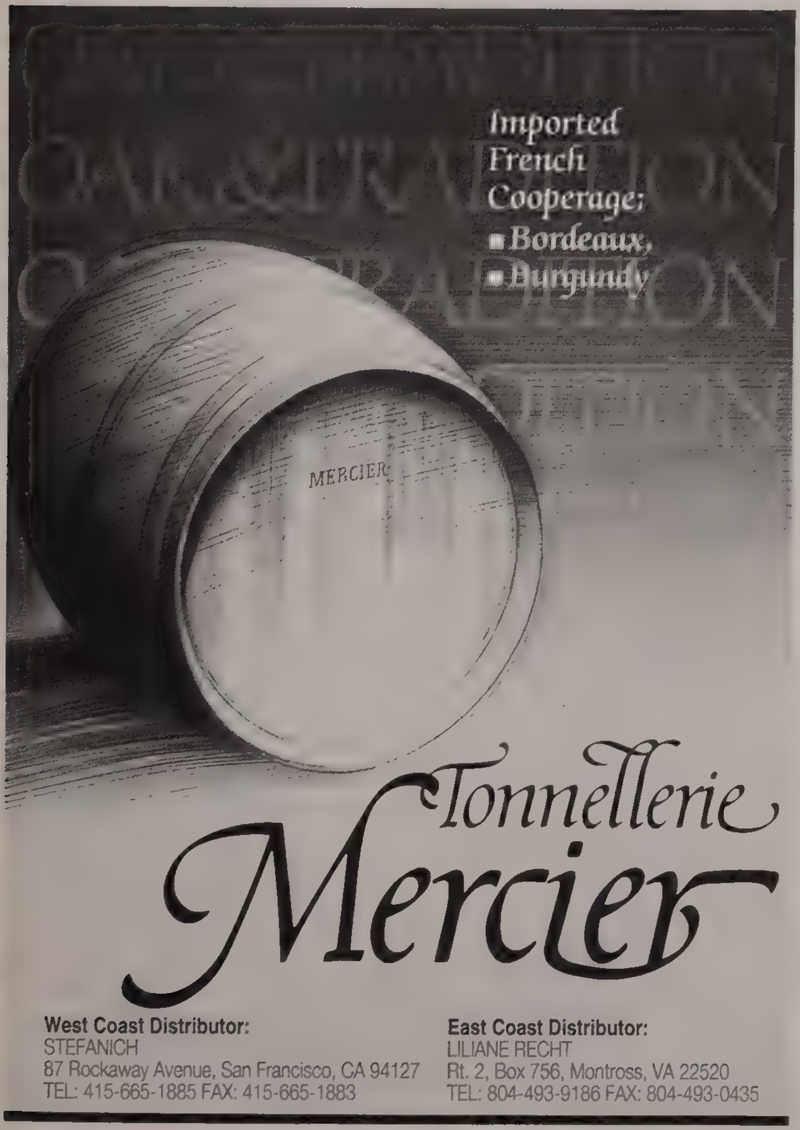
David Storm is a consulting civil/ sanitary engineer specializing in winery utility systems and is the owner of Winters Winery, CA.

References

1. Personal Communication, January 1995. Ralph Carhart, CALTRANS Adopt-a-Highway Program Coordinator, Sacramento, CA.

2. "New Look in Recycled Plastic," 1994. Riggle, David. ***Biocycle***, September 1994, pp. 39-40.

3. *Standard Specifications for RecyWall*, 1993. Sanders Enterprises, Inc. Scott City, MO 63780.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GUERRILLA MARKETING *by Jay Conrad Levinson*

Introducing new wines effectively

Out there in your target market, there are people who become bewitched and captivated at almost any wine that is new. They purchase it simply because it *is* new. These are the **Yes-to-New People**; they're turned on by innovation.

Some markets are like that, too. In the women's shampoo market, 90% of the women will try at least one new shampoo in a single year. New is more powerful than lather in shampoo language.

Mixed in with these try-anything-new folks is the wait-and-see crowd. They're the **No-to-New People**. They don't buy wines solely because they're new. They distrust anything they haven't heard of even if it's demonstrably better. Why? Because they don't cotton to strangers. And if you're new, you're an automatic stranger.

The Yes-to-New group within your target market ***will buy*** the wine you sell because it is new. That's all they need to know. The No-to-New group in your audience ***will not buy*** the wine you sell because it is new. That's all they need to know.

But the big chunk of your audience wants to know more than the mere fact that your wine is new. They're the **Maybe-to-New People**, and luckily, they're the majority of the human race. Your marketing should be aimed and worded for them. But to get them to buy, you've got to roll up your sleeves.

Now get this: ***the Maybe-to-New folks want to buy your new wine***. You have identified them as your target audience because you know they will enjoy the new wine of which you are justifiably so proud. You've got just what they want. Now how do you market it with the greatest effectiveness? Try these ten guerrilla hints:

1. Aim your marketing and your message only at the maybes and not one iota to the yeses or noes.

2. Show your confidence in your wine by the way you introduce it. Tell why new makes it better.

3. In your marketing materials, use the words "new," "announcing," "introducing," "first of its kind," and "finally."

4. After the bugs have been worked out and distribution is set, fire your big guns. Run big ads. Do direct mail. Guerrilla marketers know that direct mail offers work much better if people have heard of the offering before they receive the mailing. So use ads to make them familiar with your name, then mail to make a specific offer. They've heard of you, so they're more likely to accept it.

5. Be certain there is a cohesiveness in your ads, brochures, sales presentations, letters, postcards, logo, claims, theme, and everything else on the marketing front.

6. Use testimonials from your pioneer buyers as soon as possible. Quote these buyers directly and include the specific

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benefits they found. Use specific numbers.

7. As soon as possible, talk about community or industry acceptance. Show how others just like those in your target market are already serving your wine.

8. Be certain that your publicity is coordinated with your other marketing, appearing right at the outset but not too early. Better a month late than a month early. Use reprints of that publicity in your other marketing efforts.

9. Convey a spirit of enthusiasm in your copy, in your sales force, and your marketing. Enthusiasm works all the time, but it's best at the launch when it's needed the most.

10. Know what you will do with your marketing after the honeymoon is over. New is new for six months at most, and you may break the bank during that time. But once new is over, you must make a change in your marketing. By having phase two lurking in the copy of your introductory marketing, you prepare consumers for that change. When you're ready, you'll be glad you planned for it.

Introducing new wine types and labels is a special art, quite different from standard marketing. In the hands of a guerrilla, it is precious opportunity to earn hefty profits. ■

Jay Conrad Levinson is author of the internationally acclaimed, best-selling marketing series: Guerrilla Marketing, Guerrilla Marketing Attack, Guerrilla Marketing Weapons, Guerrilla Marketing Excellence, Guerrilla Advertising, and The Guerrilla Marketing Handbook, *and co-founder of Guerrilla Marketing International. For a free catalog, call or write to Guerrilla Marketing International, PO Box 1336, Mill Valley, CA 94942, 800/748-6444, (In CA, (415/381-8361) E-Mail GM Int'l @ AOL.Com.*

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Gimme a Jake

Jake Lorenzo needs help. In Oliver's, the great downtown bar at the Mayflower Park Hotel (Seattle, WA), he's getting it. Jake is in Oliver's for a book signing. Copies of *Cold Surveillance* are displayed prominently and artistically amongst bottles of tequila and the free hors d'oeuvres.

Marc Nowak, hotel general manager, has high expectations. After all, it's Friday night, and Jake has just killed them on KIRO's Noon News program, not to mention the Larry Nelson show on KOMO radio.

Jake knows better. More than 200 people are packed into the bar, smoking up a storm and downing Oliver's deservedly famous martinis. They could care less about Jake Lorenzo. The room's ambiance shouts, "We're here to drink, not to read."

This is fine with Jake. I'm ensconced at a choice corner seat at the bar trying to invent a drink. Patrick, Michael, and Steve, the bartenders, are helping, while they pump out hundreds of cocktails to the thirsty crowd.

On a recent trip to Mexico, where I was doing research for my new book on tequila, I was reading an old John MacDonald novel featuring Travis McGee. In this novel, Travis and his friends were drinking cocktails named after the hero. I figured what's good enough for Travis McGee is good enough for Jake Lorenzo.

The McGee featured gin. My drink features tequila, of course.

Inventing a cocktail ain't easy. For starters, Patrick made a Jake's Inspiration. This is the martini they named after me for the 1994 Seattle martini competition. It's a Bombay Sapphire Gin martini that uses prickly pear-infused Patron Tequila in place of vermouth — very nice.

Then Michael mixed an Oliver's martini, named Seattle's finest classic martini for three years running—extraordinary. Then we got down to work, We used lime rubs, liquor rinses, heavy shakers, major strainers, and after hours of serious tastings we had the world's first tequila martini, named simply "Jake."

Here's how it's done:

Take a long strip of lime zest and rub the inside of a chilled pint glass. Pour 1-oz of Cutler Cellar Cabernet Sauvignon into the pint glass and rinse the inside. Discard the wine. Fill the glass with ice. Pour in the tequila. (We used Hornitos, but I think future experiments will show that any 100% agave blanco or most lighter reposado tequilas will work. Do not use gold, aged, or anejo tequilas. They overpower the delicate balance of the drink.) Cover the glass with a metal shaker, and shake like hell while whistling the bridge to "Tequila." Let rest for one minute, then strain into chilled martini glasses. Garnish with curled lime zest. Two jalapeno-stuffed olives are optional.

The finished drink should have tiny ice crystals floating on top. It should be brilliantly clear with a delicate pink hue. The first sip will have the slightest rough edge to it, and subsequent sips will get smoother and smoother. The second "Jake" will

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relax all major muscle groups. A third "Jake" will dissolve all vestiges of mental or physical stress. More than three "Jakes" are the cocktailing equivalent of electric shock therapy and can lead to a temporary loss of memory and/or consciousness.

By now, you are probably asking yourself, "What the hell does this have to do with wine?" It's a valid question. After all **PWV** is ostensibly a publication dedicated to wine — winemaking, grapegrowing, and wine-marketing. What Jake is trying to teach is that the wine industry doesn't understand marketing.

I've been writing about wine for more than 12 years. I'm the author of a very successful book, *Cold Surveillance*, that tells in a humorous way about life in the wine business. In all of those 12 years of writing, I've received a total of three bottles of wine in the mail. That's it. Figuring a six-ounce pour, that works out to a little more than one glass per year. Believe me, Jake Lorenzo needs more than that to brush his teeth, let alone keep abreast of current wine trends.

Now, Jake Lorenzo is simply ***talking*** about doing a book on tequila. I've made one 10-day trip to Mexico to research the project, and I've already received 28 bottles of tequila from great producers like Herradura, Sauza, El Tesoro, Porfidio, and Centinela. Tequila guys are looking for people to try their products and write about them. They are eager and pleased to offer their products for sampling, and I plan on rewarding them for their generosity.

As long as my liver will hold out, I've embarked on the largest tasting of tequila ever carried out in this country. I've enlisted the help of some great sensory analysts, and we hope to develop descriptors for the various tequilas so consumers will have some idea of the different styles available.

We will not be rating them on some ridiculous 100-point system. We will not be hitting them up for ads in some fancy tequila magazine. We will not be ragging on them about the different ways they make, blend, age, or sell their products. We're simply tasting and reporting on all these tequilas because it seems like a fun thing to do.

The tequila industry will benefit because a funny, informative, informal book will be published about their product. Jake Lorenzo and my friends will have a great time tasting all kinds of tequilas and pounding down "Jakes." Hopefully, I will learn all there is to know about tequila, its production, its flavors, and its effects upon the central nervous system. If things work out, Jake Lorenzo could be Mr. Tequila in America.

When are you wine guys going to figure it out? Stop sending all those wine samples to Robert Parker, *The Wine Spectator*, and the *Wine Enthusiast*. Anthony Blue, Bob Thompson, Hugh Johnson and their counterparts receive so many samples of wine that they probably pay a service to haul them away.

Wise up. Send those samples to Jake Lorenzo. I won't rate them. You won't get some score based on a 100-point system. You won't read some sublime description of the subtle flavors bursting from your bottle. You won't get some call hitting you up for a half-page ad. You won't be asked to kick in $400 for a table, so you can pour your wines at my charity event.

Send the samples, and I'll drink them with my friends. If we like them, I'll write you a card telling you so. What could be better than that?

I'll tell you what. Take this column to your favorite bar. Have the bartender make you a couple of "Jakes." When you regain consciousness, give my proposition some thought. Let's see what turns up in the mail. ■

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Ciatti & Company	12	415/388-8301	415/388-0528	Joseph Ciatti
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Cork Associates	18	707/224-6000	707/224-7616	Jack Squires
Cork Supply Intl.	48	707/746-0353	707/746-7471	Justin Davis
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Data Consulting	87	707/874-3067	707/874-1635	Carey Dubbert
Duarte Nursery	3	800/GRAFTED	209/531-0352	John Duarte
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Enoferm	59	707/433-8869	707/433-2927	M.A. Graff
Enotech	6	415/851-2040	415/851-2034	Peter Klipstas
EuroMachines	19,63	703/825-5700	703/825-5789	Matt Eiser
Estate Bottling	50	707/963-5705	510/376-8263	Chuck Meuel
Expo Instruments	62	408/245-8822	same	G. Rauchwerger
Fasson Roll Div.	24	216/354-7411	216/354-7959	Bret Buelo
Food, Wine, Spirits	57	707/255-2031	707/253-8234	C. Foppiano
fp Packaging	21,44	707/258-3940	707/258-3949	Rick White
fp Portocork, Inc.	68	707/258-3930	707/258-3935	
GamaJet Cleaning	27	800/buy-jets	610/408-9945	Bob Delaney
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KLR Machines, Inc.	16	707/823-2883	707/ 823-6954	I. Linderman
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Lake County Growers	84	800/452-4727	707/995-3421	S. Gunier
Lodi Woodbridge Com.	22	209/367-4727	209/367-0737	Mark Chandler
Napa Fermentation	65	707/255-6372	707/255-6462	Pat Watkins
Naylor Wine Cellars	87	800/292-3370	717/755-2466	Dick Naylor
PBS WineGroup	25	707/944-1900		
Pickering Wry Supply	84	415/474-1588	415/474-1617	John Pickering
Prospero Equipment	55	800/332-2219	914/769-6786	David Metz

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RLS Equipment	46	609/965-0074	609/965-2509	B. Stollenwerk
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Ruszel Woodworks	81	707/745-6979	707/745-2793	J. Allenby
Santa Rosa Stainless	66	707/544-SRSS	707/544-6316	Rod Ferronato
Scott Laboratories	35,51,71	707/765-6666	707/765-6674	Bob Moeckly
Seguin Moreau,USA	41	707/252-3408	707/252-0319	Alain Fouquet
Sonoma Grapevines	78	707/542-5510	707/542-4801	Rich Kunde
Stavin	14	415/331-7849	415/331-0516	Alan Sullivan
Stefanich	81	415/665-1885	415/665-1883	F. Stefanich
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Tonnellerie Radoux	59	415/457-3955	415/457-0304	Jim Boswell
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Western Square	79	209/944-0921	209/944-0934	John Lansingh
Wine Apprec.Guild	83	800/242-9462	415/864-0377	Elliott Mackey
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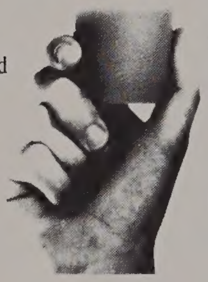

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